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

Tel: 314-674-3312
Fax: 314-674-8808

gmrina@eastman.com

December 23, 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
4th Quarter 2015 Data Report and Recommended Program Change
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Ms. Bury:

Enclosed please find the Long-Term Monitoring Program 4th Quarter 2015 Data Report for Solutia Inc.'s W. G. Krummrich Plant, Sauget, IL. 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. (4th quarter 2015 data reports for the Route 3 Drum Site, PCB, and Chlorobenzene Process Area groundwater monitoring programs will be submitted in January.)

Solutia is submitting the enclosed report earlier than the others in order to request US EPA's approval of the following program change recommendation before Solutia begins making arrangements in January for 1st quarter 2016 groundwater monitoring in February. This recommendation is pursuant to Solutia's attached September 29, 2014, letter about installation of supplemental wells PM1M and PM1D, which stated that we would: "Sample wells PM1M and PM1D, along with Supplemental Monitoring Program wells GWE-3D, 5D, 5M, and 5S and ESL-MW-D1, A, and C1, quarterly for one year … after which Solutia will make a recommendation to US EPA regarding the Supplemental Monitoring Program." (At US EPA's request, that program was expanded to include wells GWE-1D and 2D per Solutia attached October 8, 2014, letter.) Wells PM1M and PM1D were installed in January 2015 and then sampled, along with the other supplemental wells, quarterly for one year in February, May, August, and November. The attached Mann-Kendall trend analyses summarize monitoring results for benzene and chlorobenzene for the following groups/transects of wells/piezometers (completed in the Deep (DHU), Medium (MHU), or Shallow (SHU) Hydrogeologic Units): PM1M and PM1D; ESL-MW-A, C1, and D1; GWE-1D, 2D, 3D, and 5D; and GWE-5M and 5S. These analyses show trends that are "decreasing," "stable," "no trend," or "not detect" except for chlorobenzene in GWE-2D ("increasing") and benzene in GWE-3D ("probably increasing"). Therefore, <u>Solutia proposes to discontinue monitoring all of the supplemental wells except GWE-2D and 3D</u>. Those and "original" Long-Term Monitoring Program wells BSA-MW-1S, 2D, 3D, 4D, and 5D and

CPA-MW-1D, 2D, 3D, 4D, and 5D will continue to be monitored quarterly throughout 2016, after which Solutia will submit its next triennial "Periodic Technical Review" in early 2017 with recommendations for changes to all monitoring programs.

Solutia looks forward to US EPA's prompt and favorable response to this recommendation. If you have any questions or comments, please contact me at (314) 674-3312 or gmrina@eastman.com

Sincerely,

Gerald M. Rinaldi
Manager, Remediation Services

Enclosure / Attachments

cc: Distribution List

DISTRIBUTION LIST

Long-Term Monitoring Program
4th Quarter 2015 Data Report and Recommended Program Change
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

USEPA

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

Solutia

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

Golder Associates Inc.

Amanda Derhake 820 South Main Street, Suite 100, St. Charles, MO 63301

GSI Environmental (CD only)

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

Solutia Inc.
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September 29, 2014

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

VIA E-MAIL

Re: Solutia Inc., W. G. Krummrich Plant, Sauget, IL
Proposed Installation of Additional Wells for Groundwater Plume Delineation

Dear Ms. Bury:

This letter details the proposal which I made on behalf of Solutia Inc. ("Solutia") at the September 23, 2014, meeting in Springfield, IL, that US EPA called for the purpose of discussing additional monitoring of groundwater in the area between Solutia's W. G. Krummrich Plant in Sauget and the Illinois Department of Transportation (IDOT)'s highway dewatering wellfields in East St. Louis.

Solutia proposes to:

- Upon receipt of US EPA approval of this proposal, request a "Utility Permit" (access agreement) from IDOT, similar to Permit No. 8-28543 dated November 2, 2012, pursuant to which Solutia installed and monitors well ESL-MW-D1.
- By the end of October 2014, install nested wells PM1M [in the Middle Hydrogeologic Unit (MHU)] and PM1D [in the Deep Hydrogeologic Unit (DHU)] at the approximate location (to be finalized in cooperation with IDOT per the above) shown in the attached figure. The well designations and approximate location are the same as proposed in Andrews Engineering's draft "Work Plan for Installation of Monitoring Wells in the vicinity of Bowman Pump Station," dated August 22, 2014, prepared for IDOT, and discussed at the September 23, 2014, meeting. Construction of the wells will be essentially the same as proposed in Andrews' draft Work Plan, i.e., 2" diameter, stainless steel, and to depths of ~ 60 feet below ground surface for PM1M and ~ 120 feet below ground surface for PM1D. Consistent with Andrews' Work Plan, MHU well PM1M will have a 10-foot screen, but DHU well PM1D will have a 5-foot screen, consistent with DHU wells GWE-5D (diagram not available) installed in November 2011 and ESL-MW-D1 (see attached "Flush Mount Well Construction Diagram") installed in November 2012, both as part of Solutia's "Supplemental Monitoring Program."

- Sample wells PM1M and PM1D in November 2014, i.e., when Solutia's next quarterly groundwater monitoring activities are scheduled to be performed.
- Share sampling data from wells PM1M, PM1D, and ESL-MW-D1 with IDOT. IDOT will likewise share sampling data from its existing Missouri Avenue monitoring wells.
- Coordinate with IDOT any other monitoring that IDOT may wish to perform at wells PM1M and PM1D.
- Sample wells PM1M and PM1D, along with Supplemental Monitoring Program wells GWE-3D, 5D, 5M, and 5S and ESL-MW-D1, A, and C1, quarterly for one year, i.e., through August 2015, after which Solutia will make a recommendation to US EPA regarding the Supplemental Monitoring Program.

If you have any questions or comments, please contact me at (314) 674-3312 or gmrina@eastman.com Otherwise, Solutia awaits your prompt approval so that we may proceed as described herein.

Sincerely,

Gerald M. Rinaldi
Remediation Services Manager

Attachments (2)

cc: Distribution List

DISTRIBUTION LIST

September 29, 2014, Proposed Installation of Additional Wells for Groundwater Plume Delineation
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

USGS

Bob Kay rtkay@usgs.com

IDOT

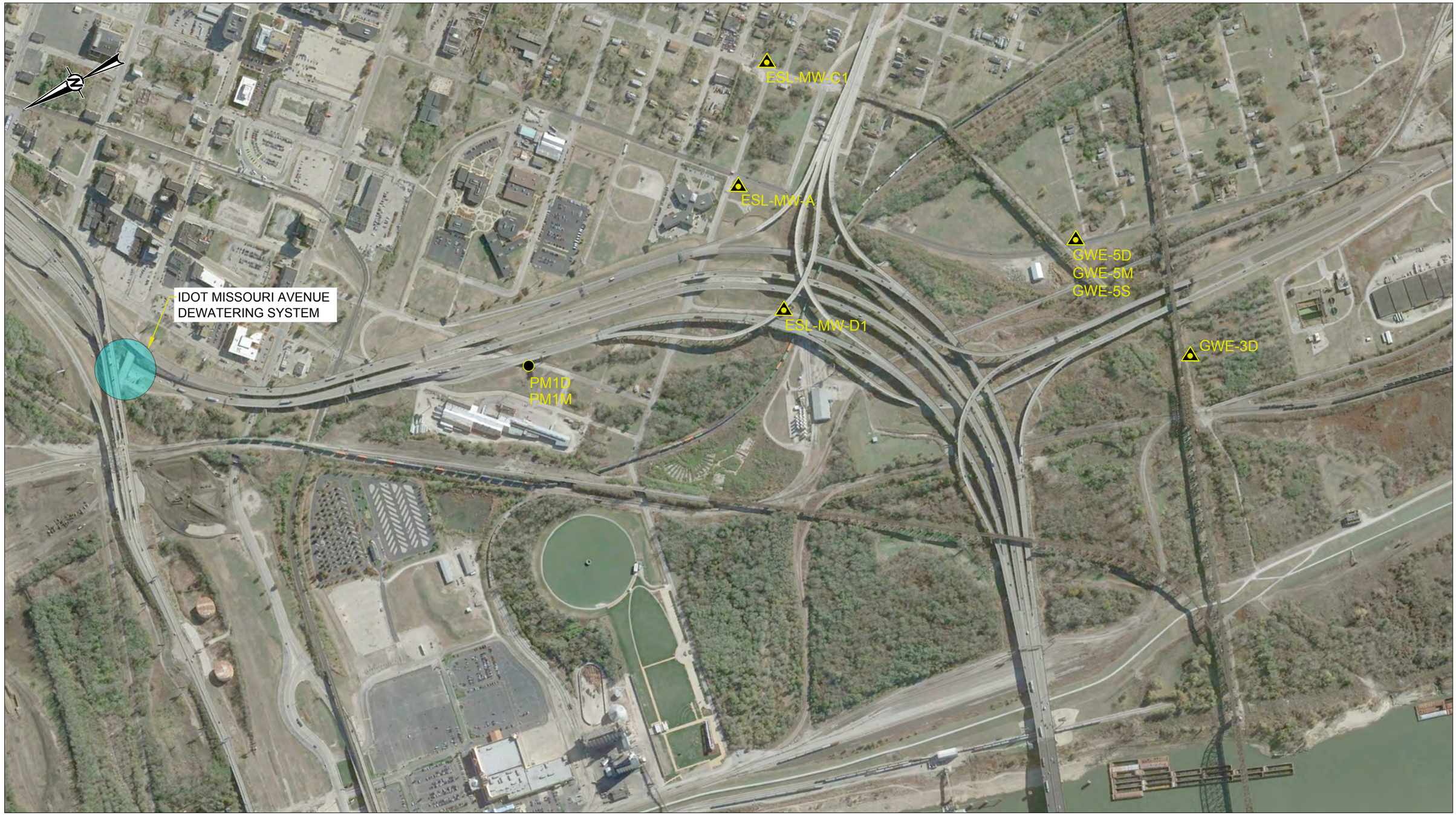
Steve Gobelman steven.gobelman@illinois.gov

Golder Associates

Mark Haddock mark_haddock@golder.com

GSI Environmental

Chuck Newell cjnewell@gsi-net.com



LEGEND

- PROPOSED MONITORING WELL LOCATION
- EXISTING SUPPLEMENTAL MONITORING WELL

0 300 600
SCALE FEET

CLIENT
SOLUTIA INC.

CONSULTANT
Golder Associates

YYYY-MM-DD	2014-09-25
PREPARED	MWD
DESIGN	MWD
REVIEW	MNH
APPROVED	MNH

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

TITLE
PROPOSED MONITORING WELL LOCATIONS

PROJECT No.	CONTROL	Rev.	FIGURE
113-84226		----	1

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FLUSH MOUNT WELL CONSTRUCTION DIAGRAM

GROUND SURFACE ELEVATION 416.38

TOP OF INNER WELL CASING ELEVATION 416.04

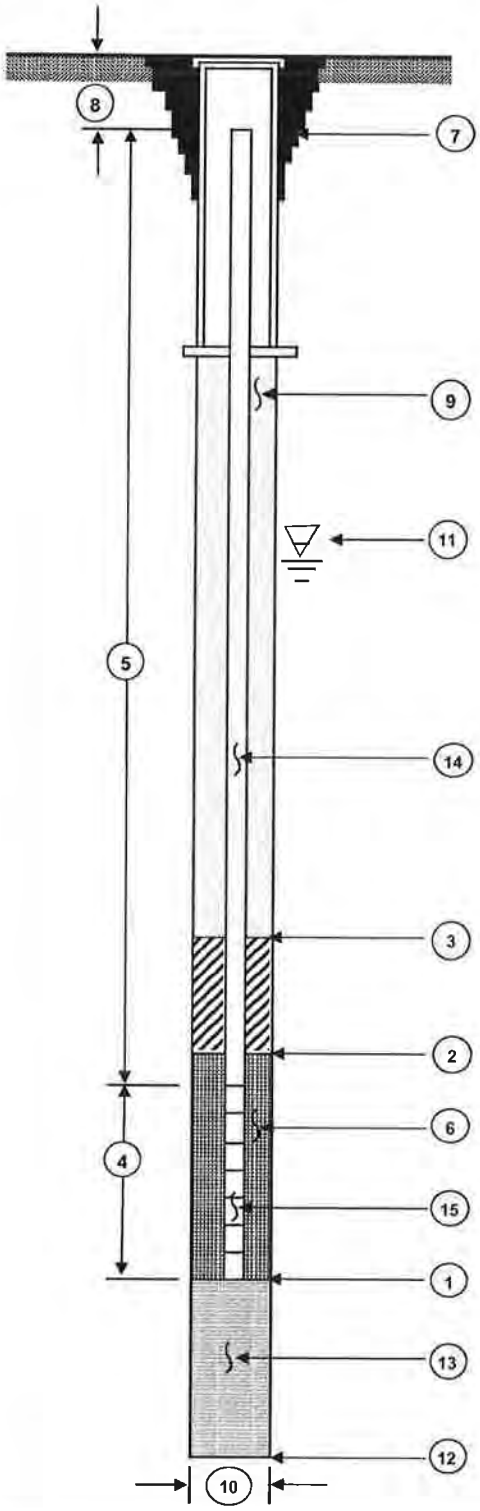
DATUM NAVD 88/IL SPCS - West NAD 83

JOB NUMBER 21562837.00002

BORING NUMBER ESL-MW-D1

INSTALLATION DATE 15-Nov-12

LOCATION Northing - 710411.99
Easting - 2296316.70



(1) DEPTH TO BOTTOM OF WELL POINT OR SLOTTED PIPE 119.00 FEET.*

(2) DEPTH TO TOP OF FILTER PACK 111.00 FEET.*

(3) DEPTH TO TOP OF SEAL 109.00 FEET.*

(4) LENGTH OF WELL SCREEN 5.00 FEET
SLOT SIZE 0.010 INCHES.

(5) TOTAL LENGTH OF RISER PIPE 113.66 FEET AT 2 INCH DIAMETER

(6) TYPE OF PACK AROUND WELL POINT OR SLOTTED PIPE
#40 Filter Sand

(7) CONCRETE CAP? (YES) NO (CIRCLE ONE)

(8) DEPTH TO TOP OF INNER CASING BELOW GROUND SURFACE 0.34 FEET.

(9) TYPE OF UPPER BACKFILL Bentonite/Cement Grout

(10) BOREHOLD DIAMETER 6 INCHES.

(11) DEPTH TO GROUNDWATER 31.3 FEET BELOW TOP OF INNER CASING ATD HOURS AFTER WELL DEVELOPMENT

(12) TOTAL DEPTH OF BOREHOLE 119.50 FEET.*

(13) TYPE OF LOWER BACKFILL #40 Sand

(14) PIPE MATERIAL Stainless Steel

(15) SCREEN MATERIAL Stainless Steel

* (DEPTH FROM GROUND SURFACE)

URS Corporation

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

Tel: 314-674-3312
Fax: 314-674-8808

gmrina@eastman.com

October 8, 2014

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

VIA E-MAIL

Re: Solutia Inc., W. G. Krummrich Plant, Sauget, IL
Amendment to 09/29/14 Submittal for
Proposed Installation of Additional Wells for Groundwater Plume Delineation

Dear Ms. Bury:

In a September 29 letter, Solutia requested US EPA's approval to install nested wells PM1M [in the Middle Hydrogeologic Unit (MHU)] and PM1D [in the Deep Hydrogeologic Unit (DHU)] for the purpose of additional monitoring of groundwater in the area between Solutia's W. G. Krummrich Plant in Sauget and the Illinois Department of Transportation (IDOT)'s highway dewatering wellfields in East St. Louis. In an October 6 phone conversation, you asked about possible extension of plume delineation not only to the north by installation of the proposed wells, but also to the west toward the Mississippi River. This letter details my response during that conversation and again requests US EPA's prompt approval so that the new wells may be installed in time to sample them in November 2014, i.e., when Solutia's next quarterly groundwater monitoring activities are scheduled to be performed.

Solutia proposes to also resume monitoring of existing DHU wells GWE-1D and 2D which have been added to the attached revision of the figure included in the September 29 submittal. Those wells represent a transect spanning the distance from DHU well GWE-3D - and nearby DHU well GWE-5D (installed in November 2011, when Solutia began its "Supplemental Monitoring Program" at US EPA's request) - to the Mississippi River. Considering the converging nature of the groundwater plume due to the influence of IDOT's dewatering wells to the north, wells GWE-1D and 2D can provide data for evaluation of conditions to the west of the plume axis.

The attached table provides the results[1] of Solutia's sampling of wells GWE-1D and 2D relative to wells GWE-3D and 5D from 3rd quarter 2011 until 1st quarter 2013, i.e., shortly before and

[1] Previously provided in Solutia's Long-Term or Supplemental Monitoring Program quarterly data reports to US EPA.

during the Supplemental Monitoring Program. Chlorobenzene concentrations averaged ~ 800 ug/L along the plume axis near GWE-3D and 5D but generally decreased to < 20 ug/L to the west at GWE-1D and 2D.

If you have any questions or comments, please contact me at (314) 674-3312 or gmrina@eastman.com Otherwise, Solutia awaits your prompt approval so that we may proceed as described in this and the September 29 letter.

Sincerely,

Gerald M. Rinaldi
Remediation Services Manager

Attachments (2)

cc: Distribution List

DISTRIBUTION LIST

October 8, 2014, Amendment to
September 29, 2014, Proposed Installation of Additional Wells for
Groundwater Plume Delineation
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

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GSI Environmental

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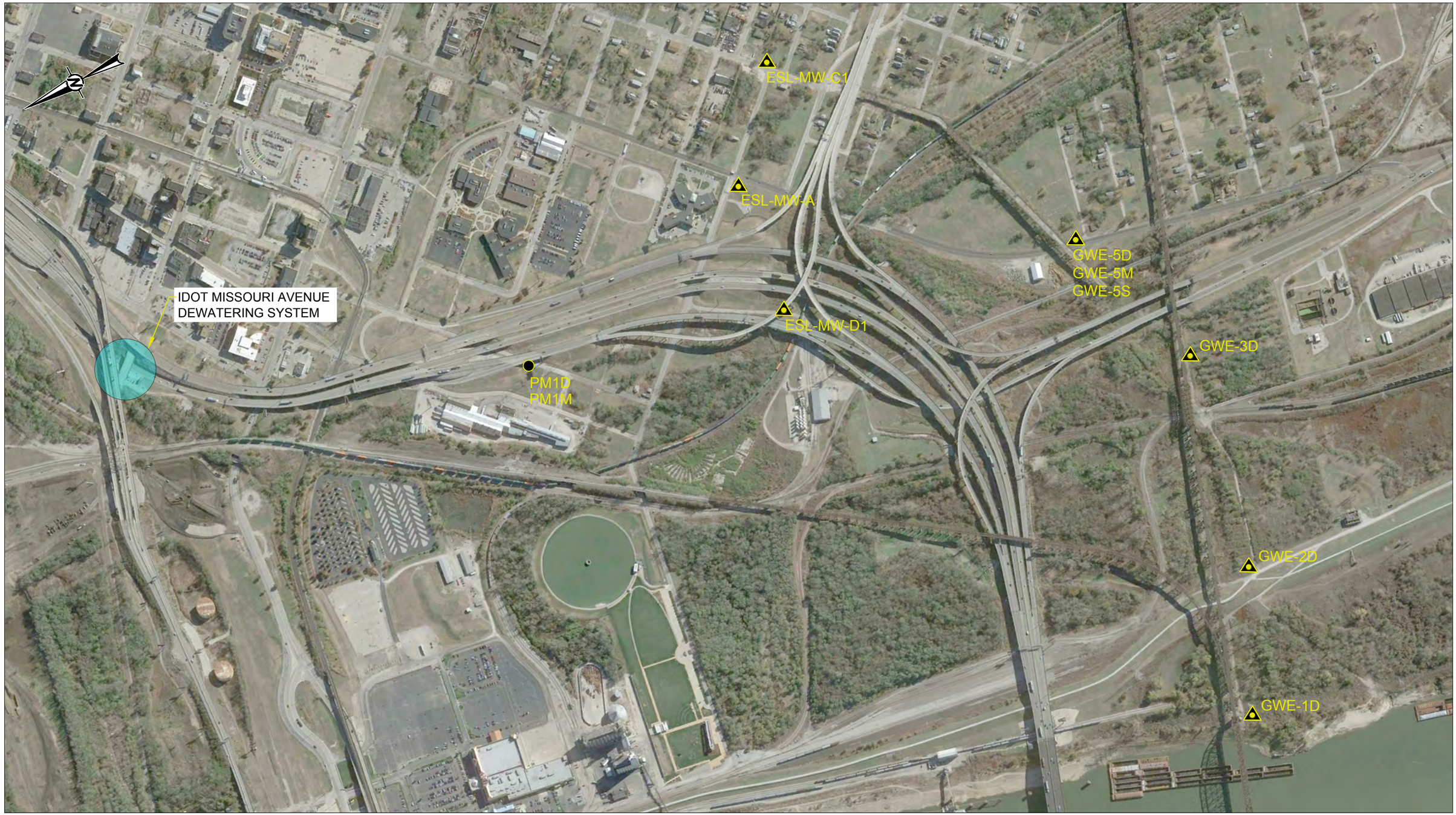

LEGEND

- PROPOSED MONITORING WELL LOCATION
- EXISTING SUPPLEMENTAL MONITORING WELL

0 300 600
SCALE FEET

CLIENT
SOLUTIA INC.

CONSULTANT
Golder Associates

YYYY-MM-DD	2014-10-06
PREPARED	MWD
DESIGN	MWD
REVIEW	MNH
APPROVED	MNH

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

TITLE
PROPOSED MONITORING WELL LOCATIONS

PROJECT No.	CONTROL	Rev.	FIGURE
113-84226		----	1

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Groundwater Concentrations
Benzene and Chlorobenzene
Wells GWE-1D, 2D, 3D, and 5D

			3rd Quarter 2011	4th Quarter 2011	1st Quarter 2012	2nd Quarter 2012	1st Quarter 2013	4th Quarter 2014	1st Quarter 2015	Geometric Mean
Location	**Units**	**Chemical**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
GWE-1D	ug/L	Benzene	<1	11	<1	<1	22	<1	<1	1
GWE-1D	ug/L	Chlorobenzene	<1	11	4.3	<1	1.8	<1	<1	1
GWE-2D	ug/L	Benzene	<1	18	<1	<1	<1	<1	<1	1
GWE-2D	ug/L	Chlorobenzene	9.5	19	5.3	9	72	160	64	25
GWE-3D	ug/L	Benzene	<10	11	<10	<10	10	19	33	10
GWE-3D	ug/L	Chlorobenzene	630	1,200	1,200	1,000	560	880	1,700	960
GWE-5D	ug/L	Benzene	NA	53	86	47	4.5	8.8	2.9	17
GWE-5D	ug/L	Chlorobenzene	NA	1,600	1,900	980	96	270	84	430

Notes
µg/L - micrograms per liter
< - Result is non-detect
Geometric Mean - Calculated using 0.5 x non-detect values and then rounded
NA - Not applicable (not installed until 4th quarter 2011)

Solutia Inc., W. G. Krummrich Plant, Sauget, IL
Long-Term Monitoring Program
4th Quarter 2015 Data Report and Recommended Program Change

December 23, 2015

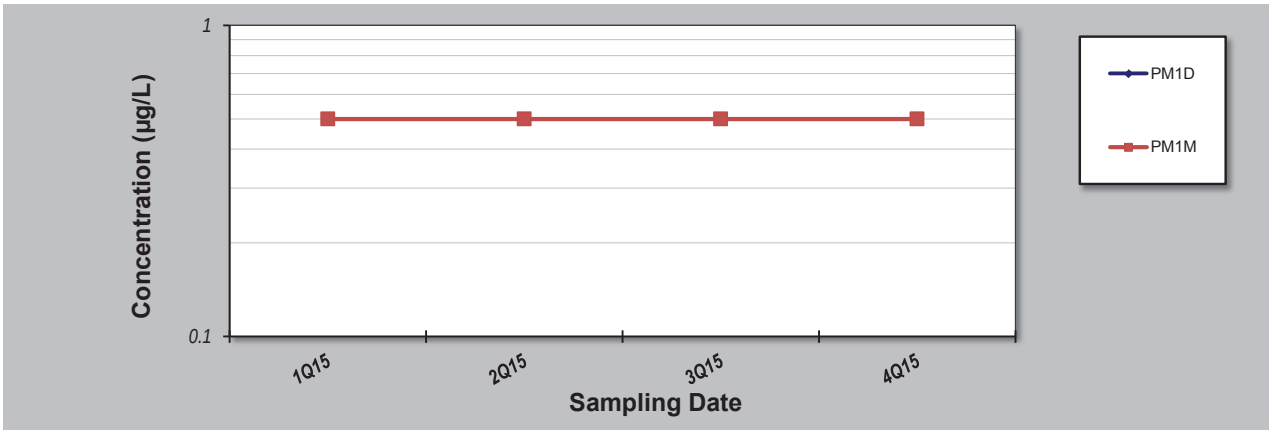
Mann-Kendall Trend Analyses

Table 1
The Mann-Kendall Test
Supplemental Monitoring Wells - Benzene
4Q15 Long-Term Monitoring Program
W.G. Krummrich Facility
Sauget, Illinois

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	November 2015	Job ID:	140-3345
Facility Name:	W.G. Krummrich Plant, Sauget, IL	Constituent:	Benzene
Conducted By:	Samantha DiCenso - Golder Associates	Concentration Units:	µg/L

Sampling Point ID:		PM1D	PM1M					
Sampling Event	Sampling Date	BENZENE CONCENTRATION (µg/L)						
1	1Q15	0.5	0.5					
2	2Q15	0.5	0.5					
3	3Q15	0.5	0.5					
4	4Q15	0.5	0.5					
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.00	0.00					
Mann-Kendall Statistic (S):		0	0					
Confidence Factor:		37.5%	37.5%					
Concentration Trend:		Not Detect	Not Detect					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.
4. Non-detect concentrations (grey) are quantified as one-half the lowest historical detection limit for a particular well for calculation of Mann-Kendall statistics.

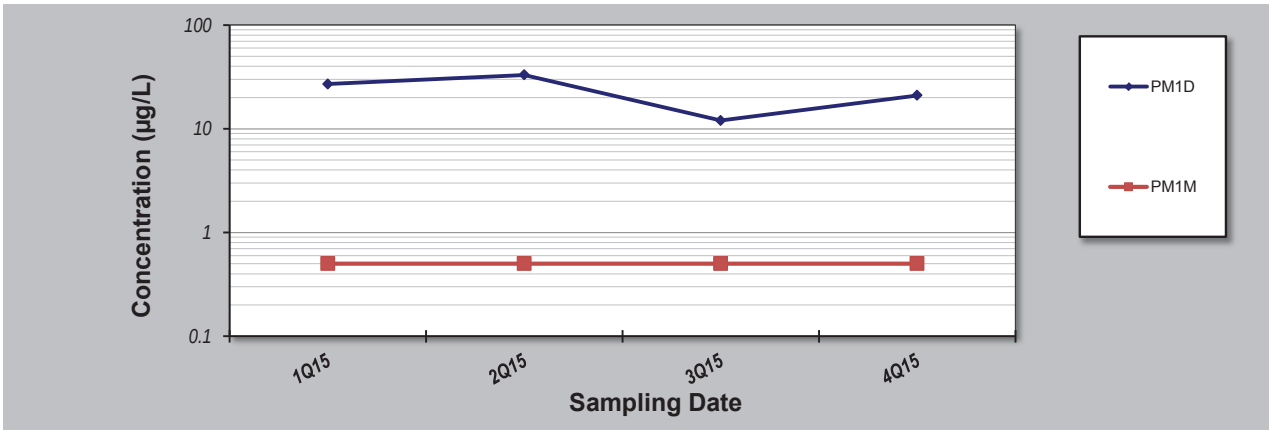
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.
GSI Environmental Inc., www.gsi-net.com

Table 2
The Mann-Kendall Test
Supplemental Monitoring Wells - Chlorobenzene
4Q15 Long-Term Monitoring Program
W.G. Krummrich Facility
Sauget, Illinois

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	November 2015	Job ID:	140-3345
Facility Name:	W.G. Krummrich Plant, Sauget, IL	Constituent:	Chlorobenzene
Conducted By:	Samantha DiCenso - Golder Associates	Concentration Units:	µg/L

Sampling Point ID:		PM1D	PM1M					
Sampling Event	Sampling Date	CHLOROBENZENE CONCENTRATION (µg/L)						
1	1Q15	27	0.5					
2	2Q15	33	0.5					
3	3Q15	12	0.5					
4	4Q15	21	0.5					
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.39	0.00					
Mann-Kendall Statistic (S):		-2	0					
Confidence Factor:		62.5%	37.5%					
Concentration Trend:		Stable	Not Detect					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. Non-detect concentrations (grey) are quantified as one-half the lowest historical detection limit for a particular well for calculation of Mann-Kendall statistics.

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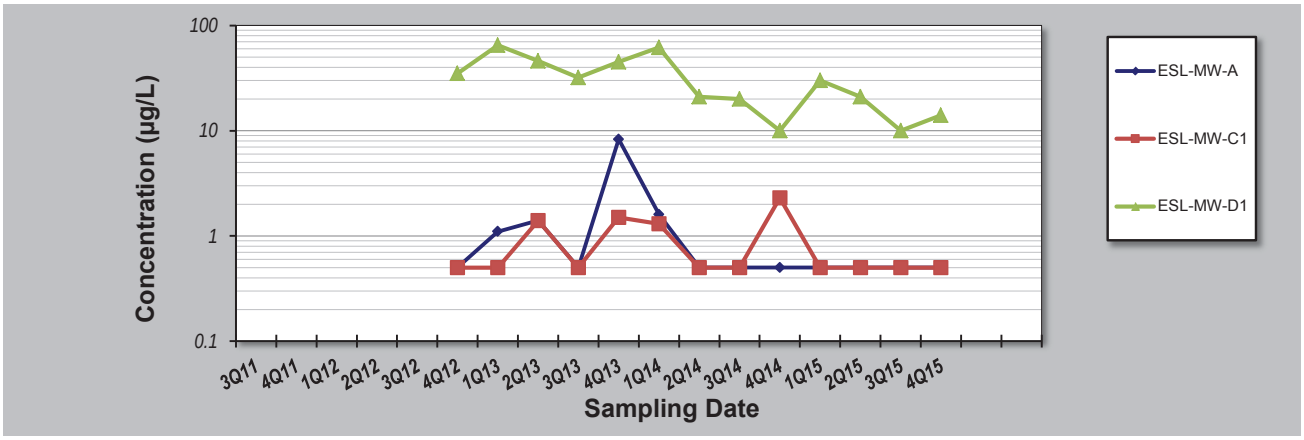
GSI Environmental Inc., www.gsi-net.com

Table 3
The Mann-Kendall Test
Supplemental Monitoring Wells - Benzene
4Q15 Long-Term Monitoring Program
W.G. Krummrich Facility
Sauget, Illinois

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	November 2015	Job ID:	140-3345
Facility Name:	W.G. Krummrich Plant, Sauget, IL	Constituent:	Benzene
Conducted By:	Samantha DiCenso - Golder Associates	Concentration Units:	µg/L

Sampling Point ID:		ESL-MW-A	ESL-MW-C1	ESL-MW-D1				
Sampling Event	Sampling Date	BENZENE CONCENTRATION (µg/L)						
1	3Q11							
2	4Q11							
3	1Q12							
4	2Q12							
5	3Q12							
6	4Q12	0.5	0.5	35				
7	1Q13	1.1	0.5	65				
8	2Q13	1.4	1.4	46				
9	3Q13	0.5	0.5	32				
10	4Q13	8.3	1.5	45				
11	1Q14	1.6	1.3	62				
12	2Q14	0.5	0.5	21				
13	3Q14	0.5	0.5	20				
14	4Q14	0.5	2.3	10				
15	1Q15	0.5	0.5	30				
16	2Q15	0.5	0.5	21				
17	3Q15	0.5	0.5	10				
18	4Q15	0.5	0.5	14				
19								
20								
Coefficient of Variation:		1.65	0.69	0.58				
Mann-Kendall Statistic (S):		-20	-8	-46				
Confidence Factor:		87.4%	66.2%	99.8%				
Concentration Trend:		Not Detect	Not Detect	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. Non-detect concentrations (grey) are quantified as one-half the lowest historical detection limit for a particular well for calculation of Mann-Kendall statistics.

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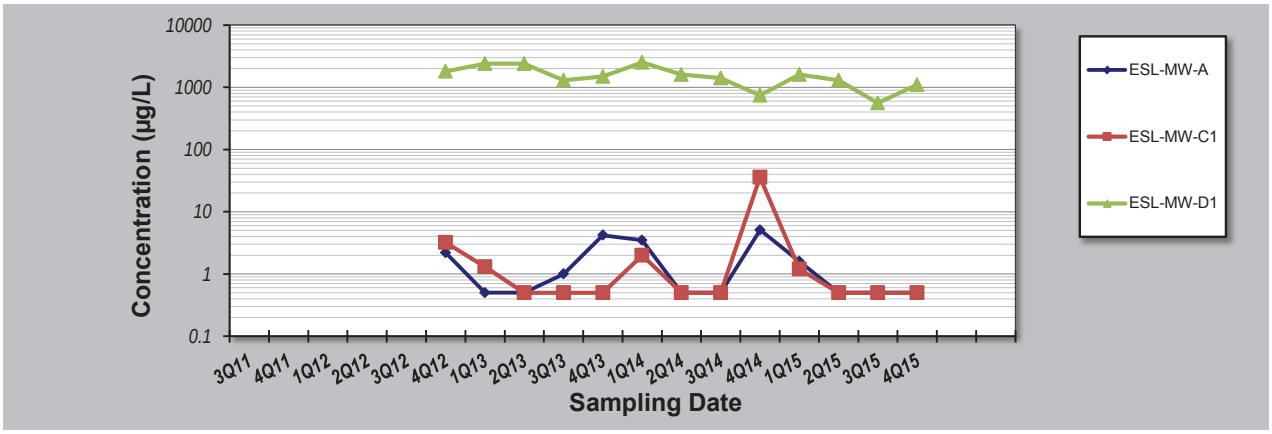
GSI Environmental Inc., www.gsi-net.com

Table 4
The Mann-Kendall Test
Supplemental Monitoring Wells - Chlorobenzene
4Q15 Long-Term Monitoring Program
W.G. Krummrich Facility
Sauget, Illinois

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	November 2015	Job ID:	140-3345
Facility Name:	W.G. Krummrich Plant, Sauget, IL	Constituent:	Chlorobenzene
Conducted By:	Samantha DiCenso - Golder Associates	Concentration Units:	µg/L

Sampling Point ID:		ESL-MW-A	ESL-MW-C1	ESL-MW-D1				
Sampling Event	Sampling Date	CHLOROBENZENE CONCENTRATION (µg/L)						
1	3Q11							
2	4Q11							
3	1Q12							
4	2Q12							
5	3Q12							
6	4Q12	2.2	3.2	1800				
7	1Q13	0.5	1.3	2400				
8	2Q13	0.5	0.5	2400				
9	3Q13	1	0.5	1300				
10	4Q13	4.2	0.5	1500				
11	1Q14	3.5	2	2500				
12	2Q14	0.5	0.5	1600				
13	3Q14	0.5	0.5	1400				
14	4Q14	5.1	36	740				
15	1Q15	1.6	1.2	1600				
16	2Q15	0.5	0.5	1300				
17	3Q15	0.5	0.5	560				
18	4Q15	0.5	0.5	1100				
19								
20								
Coefficient of Variation:		1.00	2.66	0.39				
Mann-Kendall Statistic (S):		-11	-16	-39				
Confidence Factor:		72.5%	81.6%	99.1%				
Concentration Trend:		No Trend	No Trend	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. Non-detect concentrations (grey) are quantified as one-half the lowest historical detection limit for a particular well for calculation of Mann-Kendall statistics.

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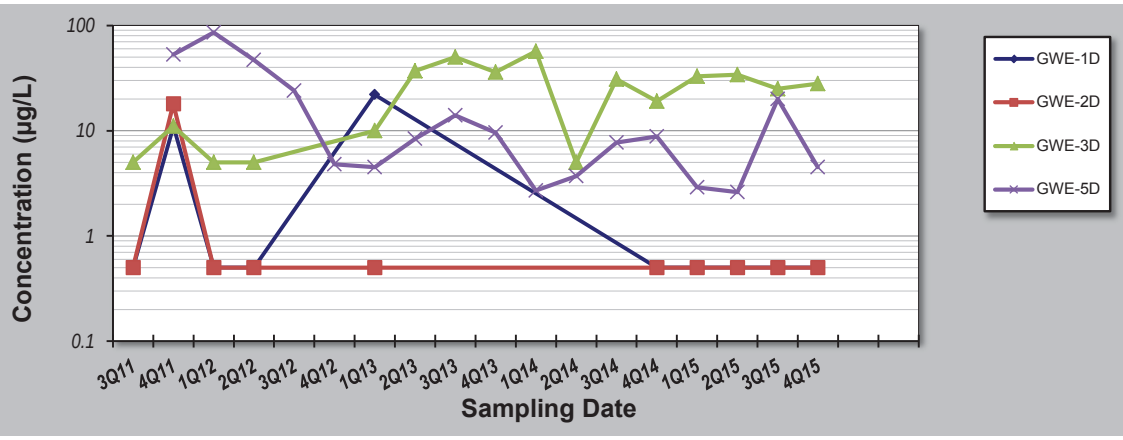
Table 5
The Mann-Kendall Test
Supplemental Monitoring Wells - Benzene
4Q15 Long-Term Monitoring Program
W.G. Krummrich Facility
Sauget, Illinois

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	November 2015	Job ID:	140-3345
Facility Name:	W.G. Krummrich Plant, Sauget, IL	Constituent:	Benzene
Conducted By:	Samantha DiCenso - Golder Associates	Concentration Units:	µg/L

Sampling Point ID:		GWE-1D	GWE-2D	GWE-3D	GWE-5D			
Sampling Event	Sampling Date	BENZENE CONCENTRATION (µg/L)						
1	3Q11	0.5	0.5	5				
2	4Q11	11	18	11	53			
3	1Q12	0.5	0.5	5	86			
4	2Q12	0.5	0.5	5	47			
5	3Q12				24			
6	4Q12				4.8			
7	1Q13	22	0.5	10	4.5			
8	2Q13			37	8.4			
9	3Q13			50	14			
10	4Q13			36	9.6			
11	1Q14			57	2.7			
12	2Q14			5	3.7			
13	3Q14			31	7.7			
14	4Q14	0.5	0.5	19	8.8			
15	1Q15	0.5	0.5	33	2.9			
16	2Q15	0.5	0.5	34	2.6			
17	3Q15	0.5	0.5	25	20			
18	4Q15	0.5	0.5	28	4.5			
19								
20								
Coefficient of Variation:		1.95	2.46	0.68	1.29			
Mann-Kendall Statistic (S):		-7	-7	30	-63			
Confidence Factor:		70.0%	70.0%	90.3%	99.6%			
Concentration Trend:		Not Detect	Not Detect	Prob. Increasing	Decreasing			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. Non-detect concentrations (grey) are quantified as one-half the lowest historical detection limit for a particular well for calculation of Mann-Kendall statistics.

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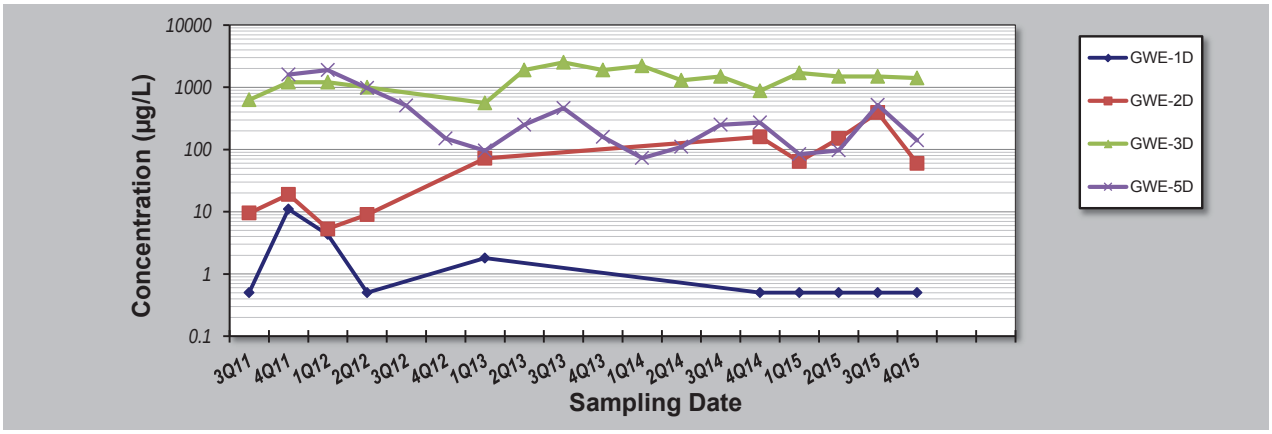
Table 6
The Mann-Kendall Test
Supplemental Monitoring Wells - Chlorobenzene
4Q15 Long-Term Monitoring Program
W.G. Krummrich Facility
Sauget, Illinois

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: November 2015
Facility Name: W.G. Krummrich Plant, Sauget, IL
Conducted By: Samantha DiCenso - Golder Associates

Job ID: 140-3345
Constituent: Chlorobenzene
Concentration Units: µg/L

Sampling Point ID:		GWE-1D	GWE-2D	GWE-3D	GWE-5D			
Sampling Event	Sampling Date	CHLOROBENZENE CONCENTRATION (µg/L)						
1	3Q11	0.5	9.5	630				
2	4Q11	11	19	1200	1600			
3	1Q12	4.3	5.3	1200	1900			
4	2Q12	0.5	9.0	1000	980			
5	3Q12				510			
6	4Q12				150			
7	1Q13	1.8	72	560	96			
8	2Q13			1900	250			
9	3Q13			2500	460			
10	4Q13			1900	160			
11	1Q14			2200	73			
12	2Q14			1300	110			
13	3Q14			1500	250			
14	4Q14	0.5	160	880	270			
15	1Q15	0.5	64	1700	84			
16	2Q15	0.5	150	1500	97			
17	3Q15	0.5	390	1500	520			
18	4Q15	0.5	60	1400	140			
19								
20								
Coefficient of Variation:		1.63	1.26	0.37	1.21			
Mann-Kendall Statistic (S):		-16	21	21	-49			
Confidence Factor:		90.7%	96.4%	81.3%	97.7%			
Concentration Trend:		Not Detect	Increasing	No Trend	Decreasing			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. Non-detect concentrations (grey) are quantified as one-half the lowest historical detection limit for a particular well for calculation of Mann-Kendall statistics.

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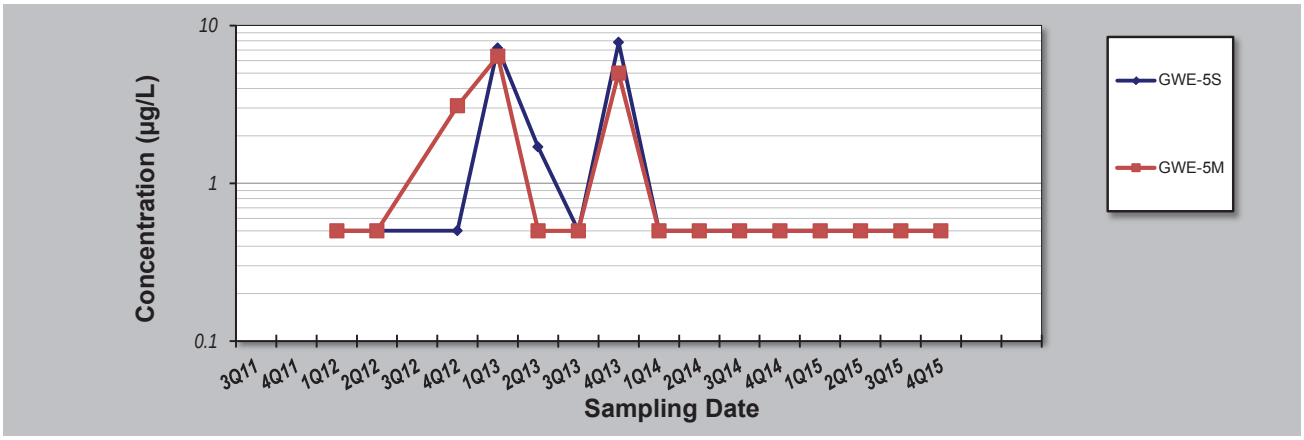
Table 7
The Mann-Kendall Test
Supplemental Monitoring Wells - Benzene
4Q15 Long-Term Monitoring Program
W.G. Krummrich Facility
Sauget, Illinois

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	November 2015	Job ID:	140-3345
Facility Name:	W.G. Krummrich Plant, Sauget, IL	Constituent:	Benzene
Conducted By:	Samantha DiCenso - Golder Associates	Concentration Units:	µg/L

Sampling Point ID:		GWE-5S	GWE-5M					
Sampling Event	Sampling Date	BENZENE CONCENTRATION (µg/L)						
1	3Q11							
2	4Q11							
3	1Q12	0.5	0.5					
4	2Q12	0.5	0.5					
5	3Q12							
6	4Q12	0.5	3.1					
7	1Q13	7.2	6.4					
8	2Q13	1.7	0.5					
9	3Q13	0.5	0.5					
10	4Q13	7.8	5					
11	1Q14	0.5	0.5					
12	2Q14	0.5	0.5					
13	3Q14	0.5	0.5					
14	4Q14	0.5	0.5					
15	1Q15	0.5	0.5					
16	2Q15	0.5	0.5					
17	3Q15	0.5	0.5					
18	4Q15	0.5	0.5					
19								
20								
Coefficient of Variation:		1.62	1.39					
Mann-Kendall Statistic (S):		-15	-19					
Confidence Factor:		75.2%	81.0%					
Concentration Trend:		Not Detect	Not Detect					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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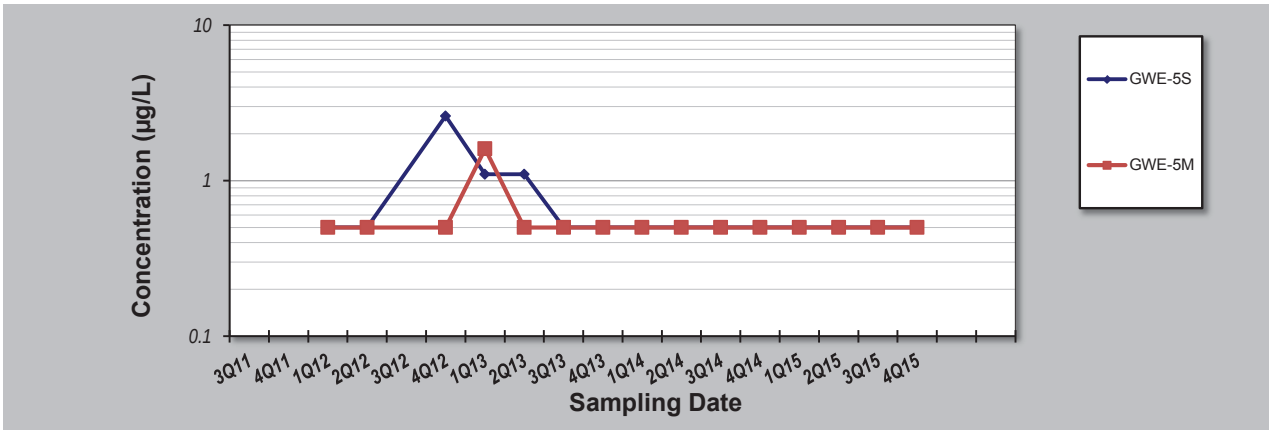
Table 8
The Mann-Kendall Test
Supplemental Monitoring Wells - Chlorobenzene
4Q15 Long-Term Monitoring Program
W.G. Krummrich Facility
Sauget, Illinois

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: November 2015
Facility Name: W.G. Krummrich Plant, Sauget, IL
Conducted By: Samantha DiCenso - Golder Associates

Job ID: 140-3345
Constituent: Chlorobenzene
Concentration Units: µg/L

Sampling Point ID:		GWE-5S	GWE-5M					
Sampling Event	Sampling Date	CHLOROBENZENE CONCENTRATION (µg/L)						
1	3Q11							
2	4Q11							
3	1Q12	0.5	0.5					
4	2Q12	0.5	0.5					
5	3Q12							
6	4Q12	2.6	0.5					
7	1Q13	1.1	1.6					
8	2Q13	1.1	0.5					
9	3Q13	0.5	0.5					
10	4Q13	0.5	0.5					
11	1Q14	0.5	0.5					
12	2Q14	0.5	0.5					
13	3Q14	0.5	0.5					
14	4Q14	0.5	0.5					
15	1Q15	0.5	0.5					
16	2Q15	0.5	0.5					
17	3Q15	0.5	0.5					
18	4Q15	0.5	0.5					
19								
20								
Coefficient of Variation:		0.78	0.50					
Mann-Kendall Statistic (S):		-26	-8					
Confidence Factor:		89.0%	63.3%					
Concentration Trend:		Not Detect	Not Detect					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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GROUNDWATER MONITORING REPORT

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

Prepared For: Solutia Inc.
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December 2015 **140-3345**

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Appendix D Groundwater Analytical Results (including data validation reports)
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1.0 INTRODUCTION

Golder Associates Inc. (Golder) is pleased to submit this report summarizing the 4th Quarter 2015 (4Q15) 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 4Q15 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 4Q15 sampling events between November 2 and November 10, 2015. Activities were performed in general accordance with the Work Plan.

2.1 Water Level Measurement

Prior to sampling during the 4Q15 event, Golder performed a synoptic round of water level measurements at 77 monitoring wells and piezometers on October 29 and October 30, 2015. The following monitoring well and piezometer series are included in the 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 4Q15 sampling event, NAPL was not detected in monitoring wells or piezometers. Total depths are measured during the 1st quarter of each year. The 4Q15 well gauging information is shown on Table 1. The information collected from the 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 4Q15 LTMP event were purged and sampled using low-flow sampling techniques, low-density polyethylene tubing (LDPE) and a submersible bladder 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 4Q15 LTMP sampling event. Laboratory provided trip blanks were included in each cooler containing samples for VOC analysis, for a total of six (6) trip blanks. Sample bottles were labeled with the date and time of sample collection, sampler initials, analysis requested, preservative used, and sample identification based on the following nomenclature "AAA-MW#-MMYY-QA/QC" or "BBBB-MMYY-QA/QC" where:

- **"AAA"** denotes "Benzene Storage Area (BSA)", "Chlorobenzene Process Area (CPA)", "East St. Louis (ESL)", or "Groundwater Elevation (GWE)" and **"MW#"** denotes "Monitoring Well Number"
- **"BBBB"** denotes PM1M or PM1D for monitoring wells installed in January 2015
- **"MMYY"** denotes month and year of sampling quarter, e.g.: November (4th quarter), 2015 (1115)
- **"QA/QC"** denotes QA/QC sample
  - **AD** – Analytical Duplicate
  - **EB** – Equipment Blank
  - **MS or MSD** – Matrix Spike or Matrix Spike Duplicate

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

2.5 Decontamination and Investigation Derived Waste

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

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

3.0 QUALITY ASSURANCE

Sample results were provided by TestAmerica in electronic format and reviewed for quality and completeness by Golder in accordance with the Work Plan. Sample results are included in Appendix D. Results were submitted in six (6) sample delivery groups (SDGs) as follows:

Sample Delivery Group (SDG)	Sample Identification
KPS152	PM1M-1115
	PM1D-1115
	PM1D-1115-AD
	ESL-MW-C1-1115
	ESL-MW-C1-1115-EB
	ESL-MW-D1-1115
	4Q15 LTM Trip Blank #1
KPS153	ESL-MW-A-1115
	GWE-5S-1115
	GWE-5M-1115
	GWE-5D-1115
	CPA-MW-5D-1115
	4Q15 LTM Trip Blank #2
KPS154	CPA-MW-4D-1115
	BSA-MW-3D-1115
	BSA-MW-3D-1115-EB
	BSA-MW-4D-1115
	BSA-MW-5D-1115
	4Q15 LTM Trip Blank #3
KPS155	GWE-3D-1115
	CPA-MW-3D-1115
	CPA-MW-3D-1115-AD
	CPA-MW-1D-1115
	BSA-MW-2D-1115
	4Q15 LTM Trip Blank #4
KPS156	GWE-1D-1115
	CPA-MW-2D-1115
	CPA-MW-2D-1115-AD
	BSA-MW-1S-1115
	BSA-MW-1S-1115-EB
	4Q15 LTM Trip Blank #5

Sample Delivery Group (SDG)	Sample Identification
KPS157	GWE-2D-1115
	4Q15 LTM Trip Blank #6

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 ten (10) of the twenty-one (21) monitoring wells and piezometers at concentrations ranging from 1.3 µg/L / 2.3 µg/L (CPA-MW-3D and AD) to 760,000 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 760,000 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 65,000 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 4,500 µg/L.
- Downgradient of Former Chlorobenzene Process Area: Benzene was detected in one (1) of four (4) wells downgradient of the former Chlorobenzene Process Area with a concentration of 1.3 µg/L / 2.3 µg/L (CPA-MW-3D and AD).
- North of the Site: Benzene was detected in three (3) of eleven (11) wells and piezometers north of the Site at concentrations of 4.5 µg/L (GWE-5D), 14 µg/L (ESL-MW-D1) and 28 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 fourteen (14) of the twenty-one (21) wells at concentrations ranging from 21 µg/L / 22 µg/L (PM1D and AD) to 35,900 µg/L / 35,900 µg/L (CPA-MW-2D and AD). 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 (4) of four (4) wells downgradient of the former Benzene Storage Area with concentrations ranging from 180 µg/L (BSA-MW-5D) to 2,067 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 32,890 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 98.5 µg/L / 110 µg/L (CPA-MW-3D and AD) to 35,900 / 35,900 µg/L (CPA-MW-2D and AD). Total chlorobenzenes were detected at a concentration of 1,800 µg/L (CPA-MW-5D) north of the GMCS.
- North of the Site: Total chlorobenzenes were detected in five (5) of eleven (11) wells and piezometers north of the Site with concentrations ranging from 21 µg/L / 22 µg/L (PM1D and AD) to 1,486 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-1115 during the deployment period” and “Evidence for biodegradation of chlorobenzene in CPA-MW-3D-1115 was inconclusive, as the ^{13}C-enriched biomass fell below the detection limit”. Dissolved inorganic carbon (DIC) data for BSA-MW-2D-1115 show “substantial benzene mineralization.” Although DIC data for CPA-MW-3D-1115 indicate that “little to no chlorobenzene was mineralized during the deployment period,” 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.

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

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

6.0 REFERENCES

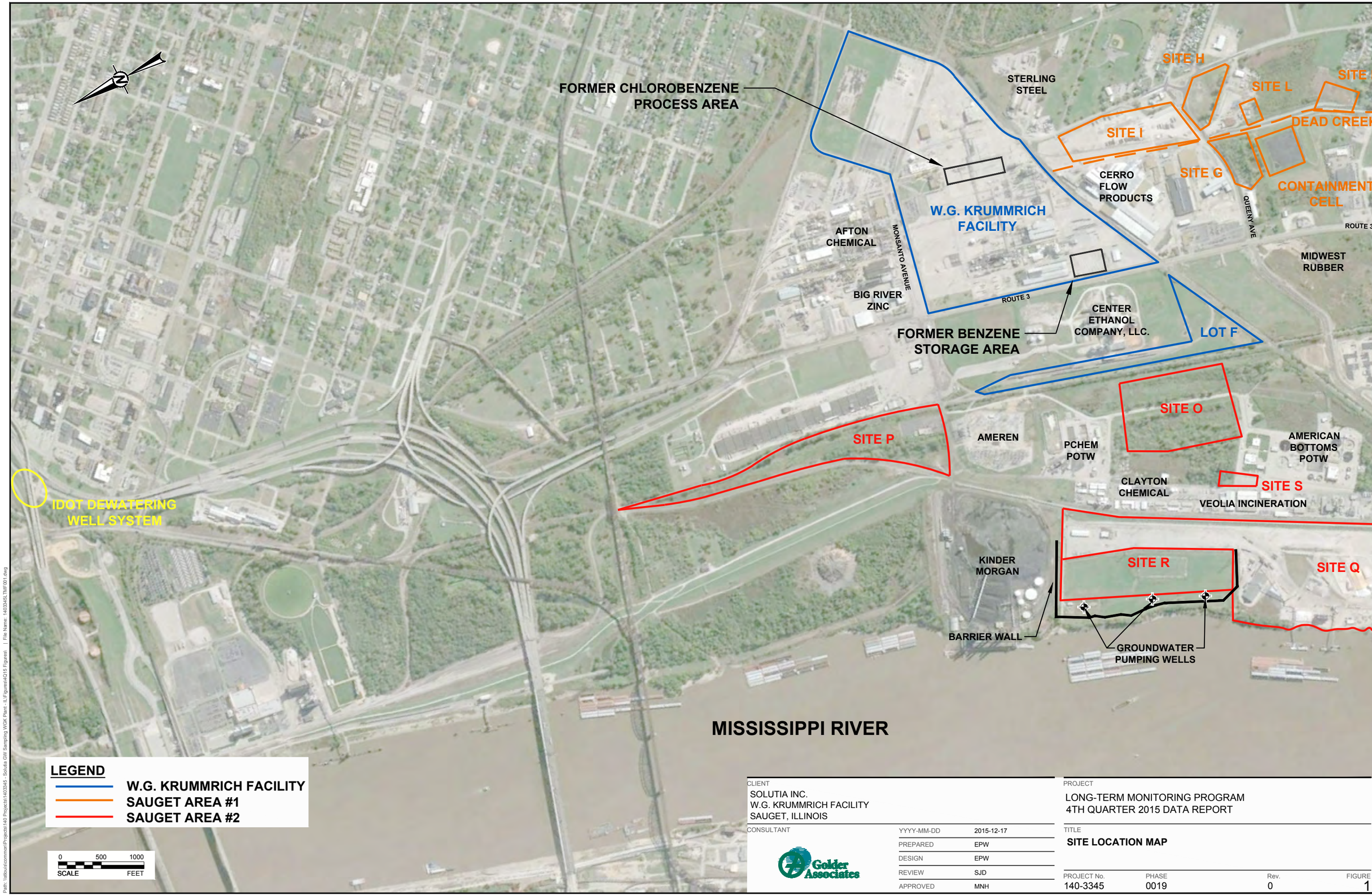
Solutia Inc., 2009. Revised Long Term Monitoring Program Work Plan, Solutia Inc., W.G. Krummrich Facility, Sauget, Illinois, May 2009.

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

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

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

FIGURES



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

CONSULTANT
Golder Associates

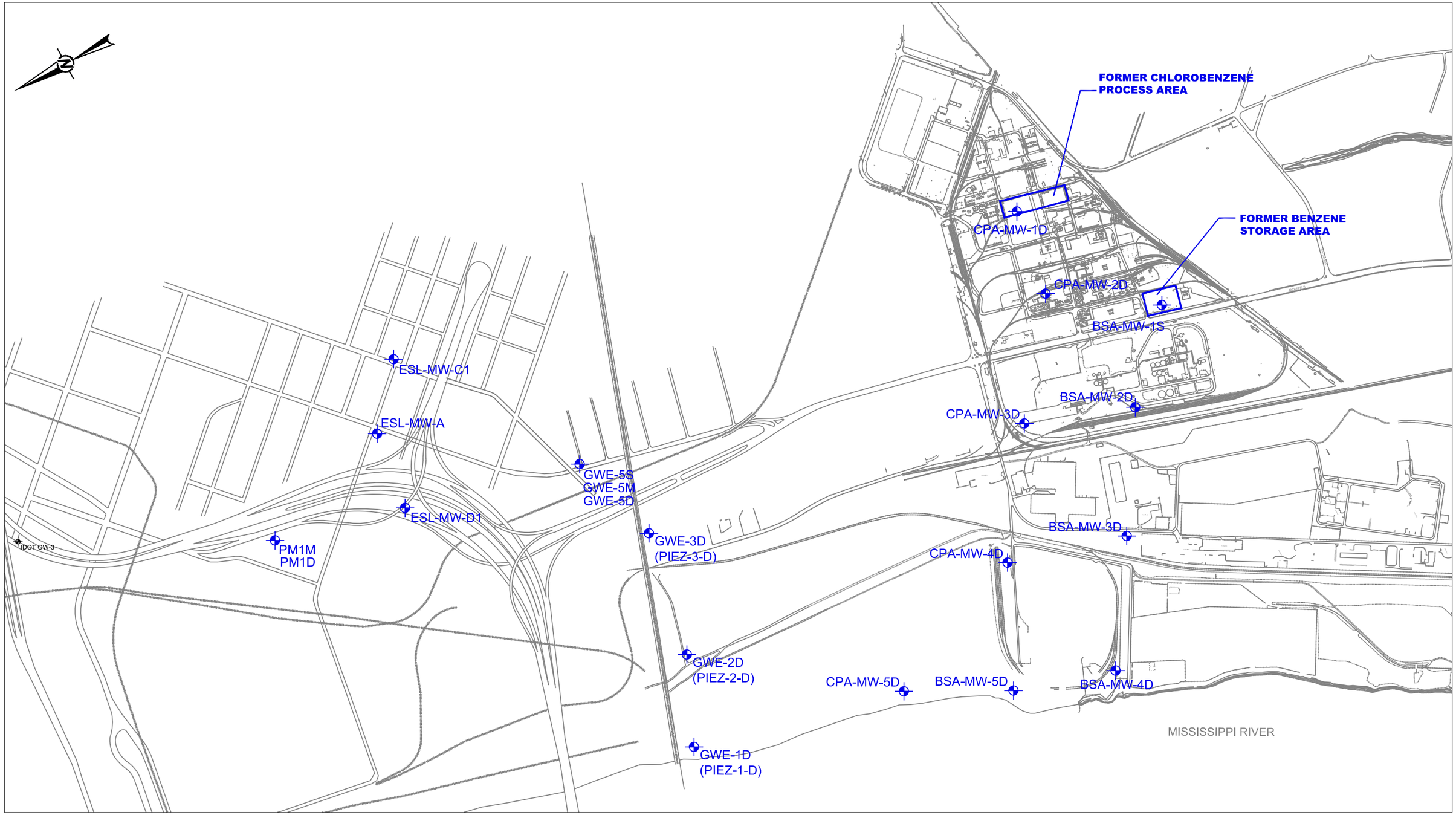
YYYY-MM-DD	2015-12-17
PREPARED	EPW
DESIGN	EPW
REVIEW	SJD
APPROVED	MNH

PROJECT
LONG-TERM MONITORING PROGRAM
4TH QUARTER 2015 DATA REPORT

TITLE
SITE LOCATION MAP

PROJECT No.	PHASE	Rev.	FIGURE
140-3345	0019	0	1

Path: \\sitious\common\Projects\140 Projects\140\3345 - Solutia GW Sampling WGK Plant - IL\Figures\4Q15 Figures\ | File Name: 1403345LTMF001.dwg
1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



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	2015-12-02
PREPARED	SJD
DESIGN	EPW
REVIEW	EPW
APPROVED	MNH

PROJECT
LONG-TERM MONITORING PROGRAM
4TH QUARTER 2015 DATA REPORT

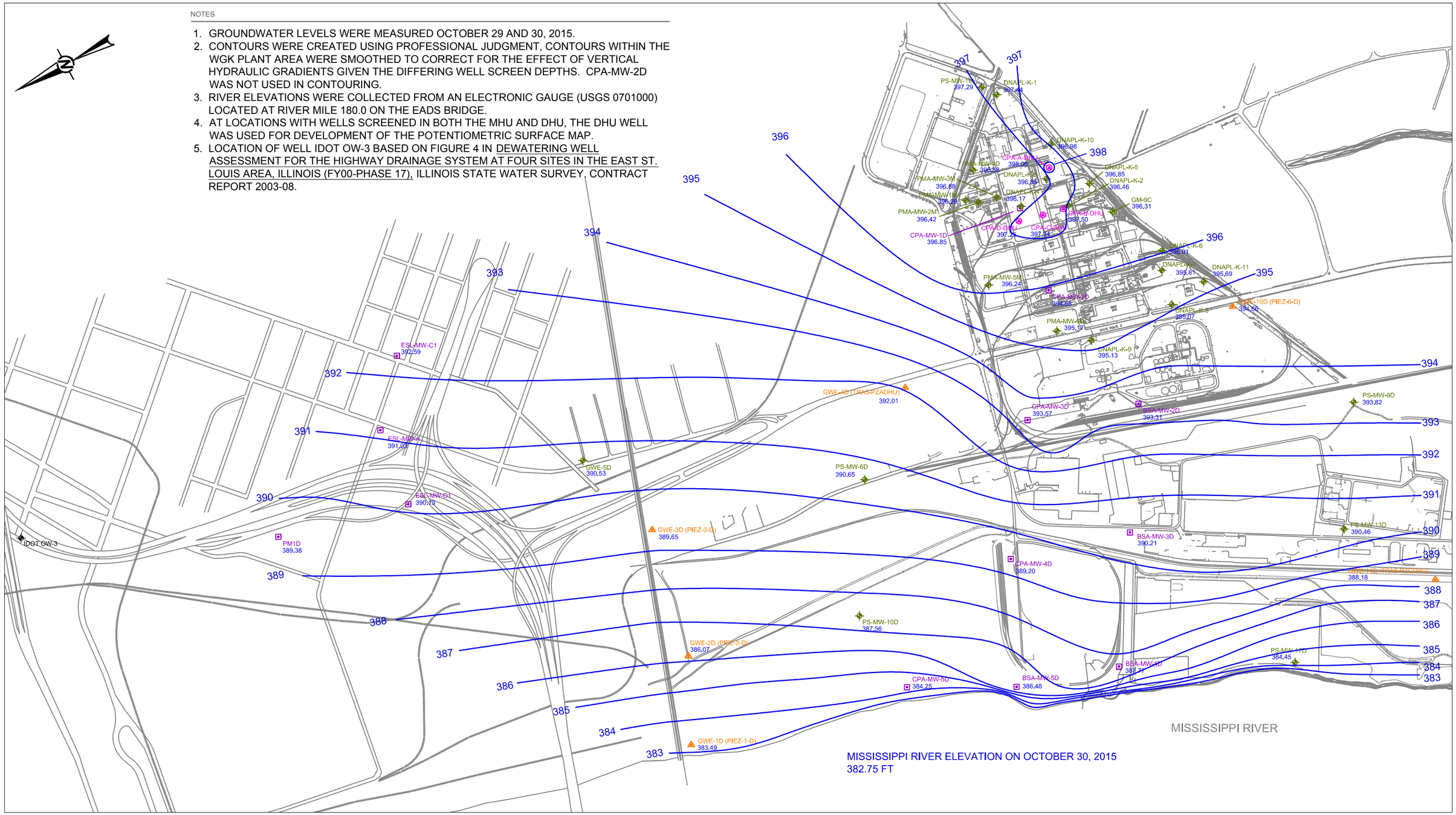
TITLE
LONG-TERM MONITORING PROGRAM WELL LOCATIONS

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0019	0	2

Path: \\titouis\common\Projects\140 Projects\1403345 - Solutia GW Sampling WGK Plant - IL\Figures\4Q15 Figures\ | File Name: 1403345_LTMP 2_SJD.dwg

NOTES

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



LEGEND

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

0 500 1000
SCALE FEET

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

CONSULTANT

Golder Associates

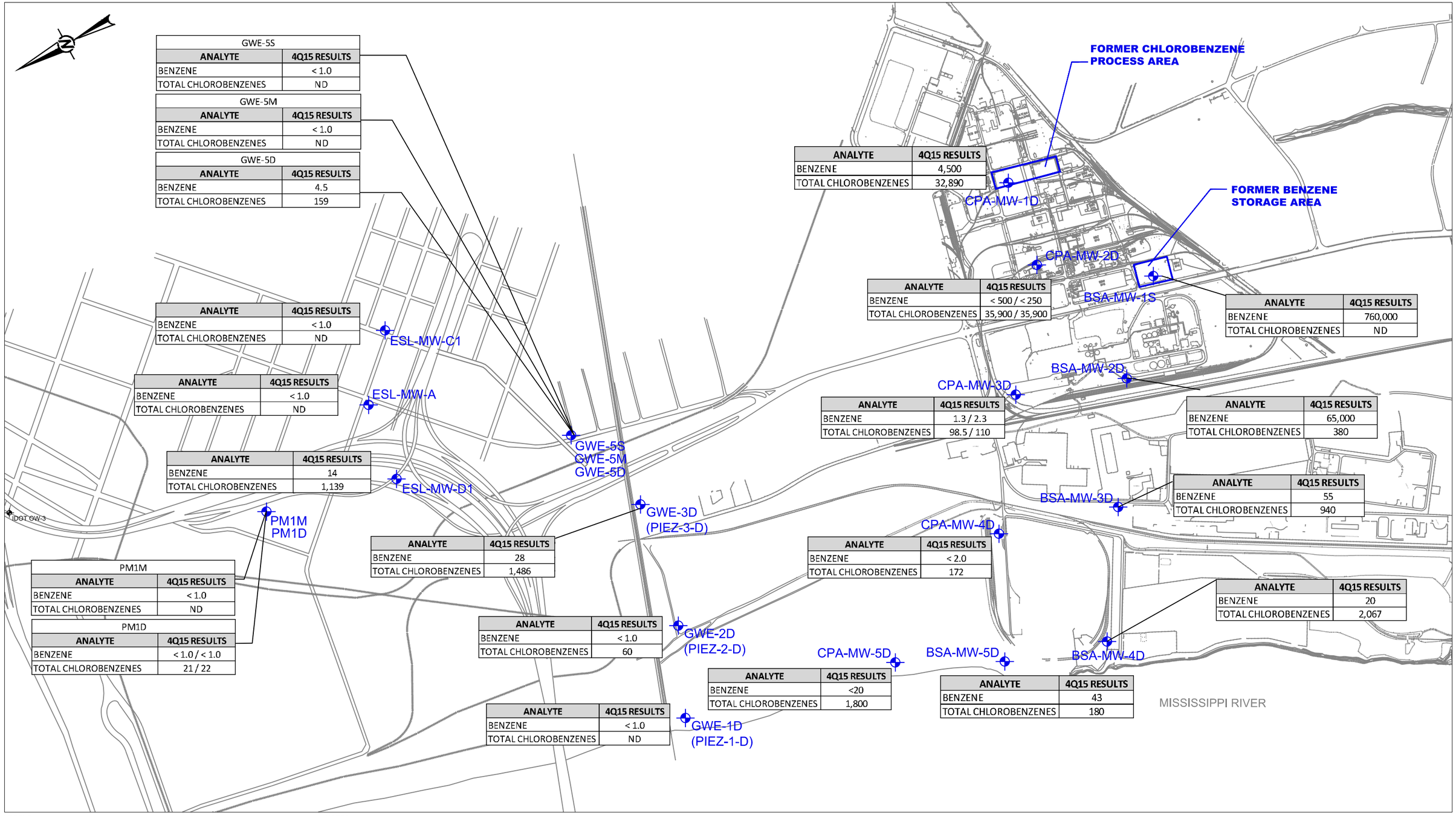
YYYY-MM-DD	2015-12-02
PREPARED	SJD
DESIGN	EPW
REVIEW	EPW
APPROVED	MNH

PROJECT
LONG-TERM MONITORING PROGRAM
4TH QUARTER 2015 DATA REPORT

TITLE
POTENTIOMETRIC SURFACE MAP
MIDDLE/DEEP HYDROGEOLOGIC UNIT

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0019	0	3

Path: \\stsus\common\Projects\140 Projects\140345 - Solutia GW Sampling WGK Plant - IL\Figures\4Q15 Figures\ | File Name: 1403345_LTMP 2_SJD.dwg



GWE-5S	
ANALYTE	4Q15 RESULTS
BENZENE	< 1.0
TOTAL CHLOROBENZENES	ND

GWE-5M	
ANALYTE	4Q15 RESULTS
BENZENE	< 1.0
TOTAL CHLOROBENZENES	ND

GWE-5D	
ANALYTE	4Q15 RESULTS
BENZENE	4.5
TOTAL CHLOROBENZENES	159

ANALYTE	4Q15 RESULTS
BENZENE	4,500
TOTAL CHLOROBENZENES	32,890

ANALYTE	4Q15 RESULTS
BENZENE	< 500 / < 250
TOTAL CHLOROBENZENES	35,900 / 35,900

ANALYTE	4Q15 RESULTS
BENZENE	760,000
TOTAL CHLOROBENZENES	ND

ANALYTE	4Q15 RESULTS
BENZENE	< 1.0
TOTAL CHLOROBENZENES	ND

ANALYTE	4Q15 RESULTS
BENZENE	< 1.0
TOTAL CHLOROBENZENES	ND

ANALYTE	4Q15 RESULTS
BENZENE	1.3 / 2.3
TOTAL CHLOROBENZENES	98.5 / 110

ANALYTE	4Q15 RESULTS
BENZENE	65,000
TOTAL CHLOROBENZENES	380

ANALYTE	4Q15 RESULTS
BENZENE	14
TOTAL CHLOROBENZENES	1,139

ANALYTE	4Q15 RESULTS
BENZENE	55
TOTAL CHLOROBENZENES	940

ANALYTE	4Q15 RESULTS
BENZENE	28
TOTAL CHLOROBENZENES	1,486

ANALYTE	4Q15 RESULTS
BENZENE	< 2.0
TOTAL CHLOROBENZENES	172

PM1M	
ANALYTE	4Q15 RESULTS
BENZENE	< 1.0
TOTAL CHLOROBENZENES	ND

PM1D	
ANALYTE	4Q15 RESULTS
BENZENE	< 1.0 / < 1.0
TOTAL CHLOROBENZENES	21 / 22

ANALYTE	4Q15 RESULTS
BENZENE	20
TOTAL CHLOROBENZENES	2,067

ANALYTE	4Q15 RESULTS
BENZENE	< 1.0
TOTAL CHLOROBENZENES	60

ANALYTE	4Q15 RESULTS
BENZENE	<20
TOTAL CHLOROBENZENES	1,800

ANALYTE	4Q15 RESULTS
BENZENE	43
TOTAL CHLOROBENZENES	180

ANALYTE	4Q15 RESULTS
BENZENE	< 1.0
TOTAL CHLOROBENZENES	ND

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.

0 500 1000
SCALE FEET

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

CONSULTANT

Golder Associates

YYYY-MM-DD	2015-12-02
PREPARED	SJD
DESIGN	SJD
REVIEW	EPW
APPROVED	MNH

PROJECT
LONG-TERM MONITORING PROGRAM
4TH QUARTER 2015 DATA REPORT

TITLE
BENZENE AND TOTAL CHLOROBENZENES RESULTS

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0019	0	4

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TABLES

Table 1
Monitoring Well Gauging Information
4Q15 Long-Term Monitoring Program
Solutia Inc., W.G. Krummrich Facility
Sauget, Illinois

Well Identification	Monitoring Well Construction Data						4Q15 - October 29 and October 30, 2015			
	Ground Surface Elevation[1] (ft)	Top of Casing Elevation[1] (ft)	Top of Screen Depth (ft bgs)	Bottom of Screen Depth (ft bgs)	Top of Screen Elevation[1] (ft)	Bottom of Screen Elevation[1] (ft)	Water Level (ft btoc)	Depth to NAPL (ft btoc)	Total Depth[2] (ft btoc)	Water Level Elevation[1] (ft)
SHU 395-380 ft NAVD 88										
BSA-MW-1S	409.49	412.31	19.68	24.68	389.81	384.81	16.90	NP	27.31	395.41
GWE-5S	408.47	408.05	17.91	27.91	390.56	380.56	17.17	NP	27.79	390.88
MHU 380-350 ft NAVD 88										
GWE-5M	408.59	408.20	48.10	58.10	360.49	350.49	17.38	NP	58.03	390.82
PMA-MW-1M	410.32	410.08	54.54	59.54	355.78	350.78	13.79	NP	59.60	396.29
PMA-MW-2M	412.26	411.93	56.87	61.87	355.39	350.39	15.51	NP	61.27	396.42
PMA-MW-3M	412.36	412.10	57.07	62.07	355.29	350.29	15.22	NP	61.81	396.88
PMA-MW-5M	411.27	410.97	52.17	57.17	359.10	354.10	14.73	NP	56.98	396.24
PS-MW-1M	409.37	412.59	37.78	42.78	371.59	366.59	15.30	NP	46.05	397.29
PM1M	413.07	412.80	51.64	61.41	361.43	351.66	23.43	NP	60.59	389.37
DHU 350 ft NAVD 88 - Bedrock										
BSA-MW-2D	412.00	415.13	68.92	73.92	343.08	338.08	21.82	NP	77.00	393.31
BSA-MW-3D	412.91	415.74	107.02	112.02	305.89	300.89	25.53	NP	114.75	390.21
BSA-MW-4D	425.00	424.69	118.54	123.54	306.46	301.46	36.92	NP	123.12	387.77
BSA-MW-5D	420.80	420.49	115.85	120.82	304.95	299.95	34.01	NP	120.89	386.48
CPA-A-DHU	413.95	416.24	108.00	113.30	305.95	300.65	18.18	NP	115.15	398.06
CPA-B-DHU	409.12	408.68	101.00	106.50	308.12	302.62	11.18	NP	105.51	397.50
CPA-C-DHU	408.92	408.57	101.00	106.00	307.92	302.92	11.23	NP	105.44	397.34
CPA-D-DHU	409.63	412.20	101.00	105.90	308.63	303.73	14.95	NP	108.24	397.25
CPA-MW-1D	408.62	412.23	66.12	71.12	342.50	337.50	15.38	NP	74.69	396.85
CPA-MW-2D	408.51	408.20	99.96	104.96	308.55	303.55	13.52	NP	104.56	394.68
CPA-MW-3D	410.87	410.67	108.20	113.20	302.67	297.67	17.10	NP	112.76	393.57
CPA-MW-4D	421.57	421.20	116.44	121.44	305.13	300.13	32.00	NP	120.98	389.20
CPA-MW-5D	411.03	413.15	107.63	112.63	303.40	298.40	28.90	NP	114.64	384.25
DNAPL-K-1	413.07	415.56	108.20	123.20	304.87	289.87	18.12	NP	123.10	397.44
DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	11.26	NP	112.40	396.46
DNAPL-K-3	412.13	415.91	104.80	119.80	307.33	292.33	19.06	NP	123.28	396.85
DNAPL-K-4	409.48	412.53	102.55	117.55	306.93	291.93	16.36	NP	118.21	396.17
DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	15.06	NP	116.54	396.85
DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	14.08	NP	116.87	396.01
DNAPL-K-7	408.32	407.72	100.40	115.40	307.92	292.92	11.91	NP	115.31	395.81
DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	16.31	NP	117.56	395.07
DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	10.84	NP	111.05	395.13
DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	16.27	NP	120.26	396.98
DNAPL-K-11	412.20	411.78	105.46	120.46	306.74	291.74	16.09	NP	120.18	395.69
GM-9C	409.54	411.21	88.00	108.00	321.54	301.54	14.90	NP	108.23	396.31
GWE-1D	412.80	415.60	117.00	127.00	295.80	285.80	32.11	NP	128.22	383.49
GWE-2D	417.45	417.14	127.00	137.00	290.45	280.45	31.07	NP	136.59	386.07
GWE-3D	415.03	417.66	104.60	114.60	313.06	303.06	28.01	NP	114.88	389.65
GWE-4D	406.05	405.74	74.00	80.00	332.05	326.05	13.73	NP	78.75	392.01
GWE-5D	408.79	408.38	100.43	105.43	308.36	303.36	17.85	NP	105.14	390.53
GWE-10D	410.15	412.87	102.50	112.50	307.65	297.65	18.21	NP	114.81	394.66
GWE-14D	420.47	422.90	90.00	96.00	330.47	324.47	34.72	NP	97.00	388.18
ESL-MW-A	412.93	412.59	105.50	110.50	307.43	302.43	21.56	NP	108.63	391.03
ESL-MW-C1	410.09	409.79	104.00	109.00	306.09	301.09	17.20	NP	109.87	392.59
ESL-MW-D1	416.38	416.04	114.00	119.00	302.38	297.38	25.91	NP	119.22	390.13
PMA-MW-4D	411.22	410.88	68.84	73.84	342.38	337.38	14.30	NP	73.38	396.58
PMA-MW-6D	407.63	407.32	96.49	101.49	311.14	306.14	12.15	NP	101.22	395.17
PS-MW-6D	404.11	406.63	102.32	107.32	304.31	299.31	15.98	NP	109.81	390.65
PS-MW-9D	403.92	403.52	100.40	105.40	303.52	298.52	9.70	NP	105.00	393.82
PS-MW-10D	409.63	412.18	103.78	108.78	308.40	303.40	24.62	NP	111.25	387.56
PS-MW-13D	405.80	405.53	106.08	111.08	299.72	294.72	15.07	NP	110.55	390.46
PS-MW-17D	420.22	423.26	121.25	126.25	298.97	293.97	38.81	NP	133.90	384.45
SA2-MW-1D	403.79	406.03	105.01	115.01	301.02	291.02	24.36	NP	102.24	381.67
PM1D	413.41	412.78	101.42	106.45	311.99	306.96	23.40	NP	106.61	389.38

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: SJD 11/24/2015
Checked By: EPW 11/30/15
Reviewed By: AWD 12/18/15

Table 2
Groundwater Analytical Results
4Q15 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-1115	11/9/2015	**760,000 D**	<10,000	<10,000	<10,000	<10,000
BSA-MW-2D-1115	11/5/2015	**65,000 D**	**380 D**	<250	<250	<250
BSA-MW-3D-1115	11/4/2015	**55 D**	**750 D**	<20	<20	**190 D**
BSA-MW-4D-1115	11/4/2015	**20 D**	**2,000 D**	<20	<20	**67 D**
BSA-MW-5D-1115	11/4/2015	**43 D**	**180 D**	<2.0	<2.0	<2.0
Chlorobenzene Process Area						
CPA-MW-1D-1115	11/5/2015	**4,500 D**	**15,000 D**	**8,900 D**	**990 D**	**8,000 D**
CPA-MW-2D-1115	11/9/2015	<500	**31,000 D**	<500	<500	**4,900 D**
CPA-MW-2D-1115-AD	11/9/2015	<250	**31,000 D**	<250	<250	**4,900 D**
CPA-MW-3D-1115	11/5/2015	**1.3 D**	**97 D**	<1.0	<1.0	**1.5**
CPA-MW-3D-1115-AD	11/5/2015	**2.3**	**110**	<2.0	<2.0	<2.0
CPA-MW-4D-1115	11/4/2015	<2.0	**170 D**	<2.0	<2.0	**2.0 D**
CPA-MW-5D-1115	11/3/2015	<20	**1,800 D**	<20	<20	<20
North of W.G. Krummrich Facility						
ESL-MW-A-1115	11/3/2015	<1.0	<1.0	<1.0	<1.0	<1.0
ESL-MW-C1-1115	11/2/2015	<1.0	<1.0	<1.0	<1.0	<1.0
ESL-MW-D1-1115	11/2/2015	**14 D**	**1,100 D**	<10	<10	**39 D**
GWE-1D-1115	11/9/2015	<1.0	<1.0	<1.0	<1.0	<1.0
GWE-2D-1115	11/10/2015	<1.0	**60**	<1.0	<1.0	<1.0
GWE-3D-1115	11/5/2015	**28 D**	**1,400 D**	<20	<20	**86 D**
GWE-5S-1115	11/3/2015	<1.0	<1.0	<1.0	<1.0	<1.0
GWE-5M-1115	11/3/2015	<1.0	<1.0	<1.0	<1.0	<1.0
GWE-5D-1115	11/3/2015	**4.5**	**140**	**3.0**	<1.0	**16**
PM1M-1115	11/2/2015	<1.0	<1.0	<1.0	<1.0	<1.0
PM1D-1115	11/2/2015	<1.0	**21**	<1.0	<1.0	<1.0
PM1D-1115-AD	11/2/2015	<1.0	**22**	<1.0	<1.0	<1.0

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: SJD 12/2/15
Checked By: EPW 12/17/15
Reviewed By: AWD 12/18/15

Table 3
Monitored Natural Attenuation Results
4Q15 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-1115	11/9/2015	1000	33	110 D	0.08	<1.1	<1.0	-	12	-	0.95	-	11,000	<0.050	45 D	48	-	-143.93
BSA-MW-1S-F(0.2)-1115	11/9/2015	-	-	-	-	-	-	>3.30	-	13	-	1.0	-	-	-	-	30	-
BSA-MW-2D-1115	11/5/2015	760	14	180 D	0.14	21	<1.0	-	5.2	-	0.72	-	18,000	<0.050	<50	11	-	-22.58
BSA-MW-2D-F(0.2)-1115	11/5/2015	-	-	-	-	-	-	>3.30	-	5.1	-	0.72	-	-	-	-	11	-
BSA-MW-3D-1115	11/4/2015	640	24	140 D	0.13	2.1	2.0	-	13	-	1.30	-	490	<0.050	170 D	4.1	-	-49.72
BSA-MW-3D-F(0.2)-1115	11/4/2015	-	-	-	-	-	-	>3.30	-	13	-	1.30	-	-	-	-	4.3	-
BSA-MW-4D-1115	11/4/2015	560	18	94 D	0.13	5.7	<1.0	-	7.5	-	0.57	-	270	<0.050	120 D	5.4	-	-56.09
BSA-MW-4D-F(0.2)-1115	11/4/2015	-	-	-	-	-	-	>3.30	-	7.4	-	0.57	-	-	-	-	6.3	-
BSA-MW-5D-1115	11/4/2015	690	22	190 D	0.13	32	<1.0	-	10	-	0.24	-	17,000	<0.050	<5.0	9.9	-	-98.41
BSA-MW-5D-F(0.2)-1115	11/4/2015	-	-	-	-	-	-	>3.30	-	10	-	0.23	-	-	-	-	8.5	-
Chlorobenzene Process Area																		
CPA-MW-1D-1115	11/5/2015	900	<5.0	99 D	0.13	25	<1.0	-	0.13	-	0.050	-	14,000	<0.050	<5.0	11	-	86.75
CPA-MW-1D-F(0.2)-1115	11/5/2015	-	-	-	-	-	-	0.00	-	0.094	-	0.047	-	-	-	-	11	-
CPA-MW-2D-1115	11/9/2015	520	19	59 D	0.15	2.3	1.6	-	8.2	-	0.44	-	780	<0.050	85 D	7.2	-	-105.88
CPA-MW-2D-F(0.2)-1115	11/9/2015	-	-	-	-	-	-	2.84	-	7.8	-	0.44	-	-	-	-	8.7	-
CPA-MW-3D-1115	11/5/2015	640	16	200 D	-0.08	3.0	<1.0	-	13	-	0.72	-	26,000	<0.050	<5.0	9.1	-	-43.29
CPA-MW-3D-F(0.2)-1115	11/5/2015	-	-	-	-	-	-	>3.30	-	14	-	0.74	-	-	-	-	9.8	-
CPA-MW-4D-1115	11/4/2015	700	27	270 D	0.10	40	<1.0	-	16	-	0.41	-	24,000	<0.050	<5.0	8.8	-	-102.86
CPA-MW-4D-F(0.2)-1115	11/4/2015	-	-	-	-	-	-	>3.30	-	16	-	0.41	-	-	-	-	9.2	-
CPA-MW-5D-1115	11/3/2015	590	25	190 D	0.15	7.9	<1.0	-	19	-	0.68	-	220	<0.050	300 D	6.8	-	-68.59
CPA-MW-5D-F(0.2)-1115	11/3/2015	-	-	-	-	-	-	>3.30	-	19	-	0.68	-	-	-	-	6.0	-
North of W.G. Krummrich Facility																		
ESL-MW-A-1115	11/3/2015	380	10	92 D	0.29	<1.1	<1.0	-	14	-	0.43	-	8.2	0.20	810 D	3.9	-	-86.01
ESL-MW-A-F(0.2)-1115	11/3/2015	-	-	-	-	-	-	>3.30	-	14	-	0.43	-	-	-	-	4.0	-
ESL-MW-C1-1115	11/2/2015	420	8.1	110 D	0.21	<1.1	<1.0	-	10	-	0.40	-	4.3	<0.050	870 D	4.0	-	-82.04
ESL-MW-C1-F(0.2)-1115	11/2/2015	-	-	-	-	-	-	>3.30	-	11	-	0.40	-	-	-	-	4.1	-
ESL-MW-D1-1115	11/2/2015	410	8.7	110 D	0.14	<1.1	<1.0	-	12	-	0.37	-	51	<0.050	710 D	3.3	-	-68.70
ESL-MW-D1-F(0.2)-1115	11/2/2015	-	-	-	-	-	-	>3.30	-	13	-	0.38	-	-	-	-	3.7	-
GWE-1D-1115	11/9/2015	530	24	74 D	0.17	<1.1	<1.0	-	22	-	0.76	-	23	<0.050	290 D	4.8	-	-137.28
GWE-1D-F(0.2)-1115	11/9/2015	-	-	-	-	-	-	>3.30	-	20	-	0.73	-	-	-	-	6.7	-
GWE-2D-1115	11/10/2015	400	24	670 D	0.40	<1.1	<1.0	-	19	-	0.5	-	80	<0.050	770 D	4.3	-	-89.14
GWE-2D-F(0.2)-1115	11/10/2015	-	-	-	-	-	-	>3.30	-	19	-	0.47	-	-	-	-	4.4	-
GWE-3D-1115	11/5/2015	460	19	1300 D	1.36	<1.1	<1.0	-	28	-	0.89	-	230	<0.050	290 D	7.5	-	-28.92
GWE-3D-F(0.2)-1115	11/5/2015	-	-	-	-	-	-	>3.30	-	27	-	0.89	-	-	-	-	6.8	-
GWE-5S-1115	11/3/2015	500	16	55 D	0.12	<1.1	<1.0	-	0.63	-	0.36	-	23	0.77	100 D	3.5	-	27.68
GWE-5S-F(0.2)-1115	11/3/2015	-	-	-	-	-	-	-	-	<0.050	-	0.28	-	-	-	-	8.9	-
GWE-5M-1115	11/3/2015	520	16	62 D	0.11	<1.1	<1.0	-	25	-	1.3	-	56	<0.050	170 D	3.2	-	-114.64
GWE-5M-F(0.2)-1115	11/3/2015	-	-	-	-	-	-	>3.30	-	23	-	1.3	-	-	-	-	4.0	-
GWE-5D-1115	11/3/2015	380	10	87 D	0.13	<1.1	<1.0	-	14	-	0.42	-	81	<0.050	550 D	3.3	-	-83.25
GWE-5D-F(0.2)-1115	11/3/2015	-	-	-	-	-	-	>3.30	-	14	-	0.42	-	-	-	-	3.2	-
PM1M-1115	11/2/2015	560	15	380 D	0.71	<1.1	<1.0	-	1.6	-	2.0	-	33	<0.050	220 D	2.5	-	-36.35
PM1M-F(0.2)-1115	11/2/2015	-	-	-	-	-	-	0.77	-	1.4	-	2.1	-	-	-	-	2.8	-
PM1D-1115	11/2/2015	410	9.0	88 D	0.09	<1.1	<1.0	-	15	-	0.52	-	46	<0.050	460 D	2.4	-	-130.52
PM1D-F(0.2)-1115	11/2/2015	-	-	-	-	-	-	>3.30	-	15	-	0.52	-	-	-	-	2.0	-

Notes
Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) values represent the final field measurements prior to sampling (In-Situ - SmartTrol™)
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: SJD 12/2/15
Checked By: EPW 12/17/15
Reviewed By: AWD 12/18/15

APPENDIX A
GROUNDWATER PURGING AND SAMPLING FORMS

In-Situ Inc.

SmartTroll
11/9/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	0.03 ft
Depth to Water	16.90 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	16:28:25	18.45	7.91	2165.37	31.80	0.10	-125.56
	16:29:17	18.50	7.90	2166.92	20.50	0.10	-131.04
	16:30:09	18.59	7.90	2162.96	23.10	0.09	-135.86
	16:31:01	18.63	7.90	2159.32	20.90	0.09	-140.61
	16:31:53	18.68	7.90	2164.15	19.80	0.08	-143.93
Variance in Last 3 Readings		0.09	0.00	-3.96	2.60	-0.01	-4.82
		0.04	0.00	-3.64	-2.20	0.00	-4.75
		0.05	0.00	4.83	-1.10	-0.01	-3.32

Notes:

In-Situ Inc.

SmartTroll
11/5/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	0.01 ft
Depth to Water	21.82 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	14:45:52	17.26	7.10	1746.69	8.28	0.16	21.85
	14:47:39	17.30	7.08	1750.70	4.11	0.15	7.12
	14:49:26	17.32	7.06	1749.45	4.14	0.14	-5.58
	14:51:13	17.39	7.05	1753.78	3.94	0.14	-15.51
	14:53:00	17.40	7.05	1742.05	4.17	0.14	-22.58
Variance in Last 3 Readings		0.02	-0.02	-1.25	0.03	-0.01	-12.70
		0.07	-0.01	4.33	-0.2	0.00	-9.93
		0.01	0.00	-11.73	0.23	0.00	-7.07

Notes:

In-Situ Inc.

SmartTroll
11/4/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	0.00 ft
Depth to Water	25.53 fft		

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	15:04:22	17.61	7.31	1947.71	11.90	0.21	-23.96
	16:06:51	17.48	7.26	1945.93	8.06	0.18	-37.91
	15:09:20	17.47	7.22	1939.51	6.77	0.15	-46.62
	15:11:50	17.43	7.20	1925.06	6.40	0.14	-51.29
	15:14:19	17.36	7.18	1882.29	6.07	0.13	-49.72
Variance in Last 3 Readings		-0.01	-0.04	-6.42	-1.29	-0.03	-8.71
		-0.04	-0.02	-14.45	-0.37	-0.01	-4.67
		-0.07	-0.02	-42.77	-0.33	-0.01	1.57

Notes:

In-Situ Inc.

SmartTroll
11/4/2015

Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	BSA-MW-4D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	897 mL
Well Total Depth	123.12 ft	Calculated Sample Rate	179 sec
Depth to Top of Screen	118.12 ft	Sample Rate	179 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	36.92 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	11:37:32	17.07	7.38	1541.23	7.54	0.28	-19.18
	11:39:56	16.98	7.32	1540.15	2.05	0.21	-34.95
	11:42:20	16.98	7.28	1540.92	2.63	0.17	-45.38
	11:44:44	16.96	7.26	1540.86	2.49	0.14	-51.71
	11:47:08	16.98	7.24	1540.40	2.14	0.13	-56.09
Variance in Last 3 Readings		0.00	-0.04	0.77	0.58	-0.04	-10.43
		-0.02	-0.02	-0.06	-0.14	-0.03	-6.33
		0.02	-0.02	-0.46	-0.35	-0.01	-4.38

Notes:

In-Situ Inc.

SmartTroll
11/4/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	34.01 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	9:28:07	16.98	7.13	1850.59	2.17	0.26	-74.51
	9:30:43	16.99	7.14	1837.44	1.81	0.20	-87.86
	9:33:19	17.03	7.15	1840.85	0.86	0.17	-93.21
	9:35:55	17.07	7.15	1859.34	0.29	0.15	-96.15
	9:38:31	17.08	7.16	1851.50	1.20	0.13	-98.41
Variance in Last 3 Readings		0.04	0.01	3.41	-0.95	-0.03	-5.35
		0.04	0.00	18.49	-0.57	-0.02	-2.94
		0.01	0.01	-7.84	0.91	-0.02	-2.26

Notes:

In-Situ Inc.

SmartTroll
11/5/2015

Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-1D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	599 mL
Well Total Depth	74.69 ft	Calculated Sample Rate	119 sec
Depth to Top of Screen	69.69 ft	Sample Rate	119 sec
Screen Length	5 ft	Stabilized Drawdown	0.02 ft
Depth to Water	15.38 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	16:09:13	19.37	8.13	1622.54	5.40	0.18	105.71
	16:10:52	19.39	7.99	1685.38	5.38	0.16	104.20
	16:12:31	19.39	7.91	1726.67	3.67	0.14	99.77
	16:14:11	19.37	7.84	1750.27	3.43	0.13	93.67
	16:15:50	19.39	7.80	1765.63	3.19	0.13	86.75
Variance in Last 3 Readings		0.00	-0.08	41.29	-1.71	-0.02	-4.43
		-0.02	-0.07	23.60	-0.24	-0.01	-6.10
		0.02	-0.04	15.36	-0.24	0.00	-6.92

Notes:

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Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-2D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	793 mL
Well Total Depth	104.56 ft	Calculated Sample Rate	158 sec
Depth to Top of Screen	99.56 ft	Sample Rate	158 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	13.52 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	15:14:54	18.68	7.73	1201.57	16.20	0.17	-91.55
	15:17:12	18.67	7.73	1210.69	13.20	0.16	-96.28
	15:19:30	18.71	7.74	1217.93	11.40	0.16	-99.91
	15:21:48	18.67	7.74	1223.77	10.90	0.16	-103.07
	15:24:06	18.77	7.74	1228.40	9.24	0.15	-105.88
Variance in Last 3 Readings		0.04	0.01	7.24	-1.80	0.00	-3.63
		-0.04	0.00	5.84	-0.50	0.00	-3.16
		0.10	0.00	4.63	-1.66	-0.01	-2.81

Notes:
Conductivity slow to stabalize.

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	0.00 ft
Depth to Water	17.10 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	13:45:44	18.10	7.03	1781.71	6.37	0.20	3.07
	13:48:11	18.09	7.01	1733.94	5.73	0.16	-14.43
	13:50:38	18.10	7.00	1713.40	4.59	0.14	-27.76
	13:53:06	18.14	6.99	1697.12	4.50	0.13	-37.21
	13:55:33	17.86	6.98	1675.29	3.33	0.08	-43.29
Variance in Last 3 Readings		0.01	-0.01	-20.54	-1.14	-0.02	-13.33
		0.04	-0.01	-16.28	-0.09	-0.01	-9.45
		-0.28	-0.01	-21.83	-1.17	-0.05	-6.08

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	0.01 ft
Depth to Water	32.00 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	10:33:19	16.57	7.34	2173.14	3.70	0.21	-75.69
	10:35:55	16.63	7.29	2124.86	2.63	0.15	-90.31
	10:38:31	16.66	7.26	2111.30	3.21	0.11	-96.42
	10:41:07	16.69	7.24	2092.80	0.49	0.09	-100.45
	10:43:43	16.72	7.23	2100.04	1.25	0.10	-102.86
Variance in Last 3 Readings		0.03	-0.03	-13.56	0.58	-0.04	-6.11
		0.03	-0.02	-18.50	-2.72	-0.02	-4.03
		0.03	-0.01	7.24	0.76	0.01	-2.41

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	149 sec
Depth to Top of Screen	109.64 ft	Sample Rate	149 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	28.90 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	15:40:46	16.04	7.03	2015.77	1.99	0.24	-52.79
	15:43:15	16.04	7.01	2020.78	1.45	0.21	-58.66
	15:45:44	16.04	6.99	2023.52	1.44	0.19	-63.17
	15:48:13	16.05	6.98	2024.94	1.92	0.17	-66.24
	15:50:42	16.06	6.98	2025.29	1.44	0.15	-68.59
Variance in Last 3 Readings		0.00	-0.02	2.74	-0.01	-0.02	-4.51
		0.01	-0.01	1.42	0.48	-0.02	-3.07
		0.01	0.00	0.35	-0.48	-0.02	-2.35

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	0.00 ft
Depth to Water	21.56 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	9:49:41	15.48	6.98	1981.20	26.90	0.31	-83.16
	9:52:04	15.53	6.98	1974.78	16.70	0.33	-83.39
	9:54:27	15.55	6.99	2003.81	12.30	0.31	-84.30
	9:56:50	15.55	6.99	2049.12	7.83	0.29	-85.63
	9:59:13	15.57	7.00	2057.13	4.64	0.29	-86.01
Variance in Last 3 Readings		0.02	0.01	29.03	-4.40	-0.02	-0.91
		0.00	0.00	45.31	-4.47	-0.02	-1.33
		0.02	0.01	8.01	-3.19	0.00	-0.38

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	0.00 ft
Depth to Water	17.20 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	15:16:53	15.69	7.29	2045.41	23.20	0.26	-81.18
	15:19:14	15.64	7.24	2078.42	17.80	0.22	-81.45
	15:21:35	15.64	7.20	2097.92	14.20	0.21	-81.53
	15:23:56	15.59	7.17	2113.98	10.50	0.22	-81.88
	15:26:17	15.55	7.15	2125.60	7.44	0.21	-82.04
Variance in Last 3 Readings		0.00	-0.04	19.50	-3.60	-0.01	-0.08
		-0.05	-0.03	16.06	-3.70	0.01	-0.35
		-0.04	-0.02	11.62	-3.06	-0.01	-0.16

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	0.00 ft
Depth to Water	25.91 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	15:05:00	16.70	6.96	1767.30	--	0.21	34.40
	15:08:00	16.60	6.95	1812.30	--	0.18	-25.80
	15:10:00	16.57	6.95	1851.10	--	0.17	-50.90
	15:13:00	16.54	6.95	1875.30	--	0.16	-63.30
	15:16:00	16.49	6.95	1885.30	--	0.14	-68.70
Variance in Last 3 Readings		-0.03	0.00	38.80	--	-0.01	-25.10
		-0.03	0.00	24.20	--	-0.01	-12.40
		-0.05	0.00	10.00	--	-0.02	-5.40

Notes: Equipment malfunction; turbidity appeared clear at time of sampling

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	Bladder
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.17 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	50 mL/min
Well Diameter	1 in	System Volume	703 mL
Well Total Depth	128.22 ft	Calculated Sample Rate	831 sec
Depth to Top of Screen	118.22 ft	Sample Rate	831 sec
Screen Length	10 ft	Stabilized Drawdown	0.06 ft
Depth to Water	32.11 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	12:17:38	19.98	7.31	1272.98	57.50	0.33	-84.61
	12:31:29	20.09	7.33	1485.94	46.80	0.24	-121.03
	12:45:21	20.55	7.34	1531.06	38.54	0.20	-131.97
	12:59:17	20.68	7.34	1554.02	25.20	0.20	-135.36
	13:13:14	20.54	7.32	1570.44	17.40	0.17	-137.28
Variance in Last 3 Readings		0.46	0.01	45.12	-8.26	-0.04	-10.94
		0.13	0.00	22.96	-13.34	0.00	-3.39
		-0.14	-0.02	16.42	-7.80	-0.03	-1.92

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	Bladder
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.17 in
Site Name	LTM	Tubing Length	135.59 ft
		Pump Placement from TOC	110 ft

Well Information:		**Pumping Information:**	
Well Id	GWE-2D	Final Pumping Rate	75 mL/min
Well Diameter	1 in	System Volume	743 mL
Well Total Depth	136.59 ft	Calculated Sample Rate	556 sec
Depth to Top of Screen	126.59 ft	Sample Rate	556 sec
Screen Length	10 ft	Stabilized Drawdown	0.00 ft
Depth to Water	31.07 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	10:50:10	19.30	7.03	3563.02	20.00	0.54	-76.32
	10:59:31	19.23	7.04	3575.59	23.20	0.50	-80.15
	11:08:47	19.47	7.04	3563.89	19.80	0.45	-83.39
	11:18:05	20.15	7.02	3577.61	11.40	0.42	-86.66
	11:27:25	20.72	7.03	3565.62	7.77	0.40	-89.14
Variance in Last 3 Readings		0.24	0.00	-11.70	-3.40	-0.05	-3.24
		0.68	-0.02	13.72	-8.40	-0.03	-3.27
		0.57	0.01	-11.99	-3.63	-0.02	-2.48

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	Bladder
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.17 in
Site Name	LTM	Tubing Length	116.0 ft
		Pump Placement from TOC	109.88 ft

Well Information:		**Pumping Information:**	
Well Id	GWE-3D	Final Pumping Rate	100 mL/min
Well Diameter	1 in	System Volume	836mL
Well Total Depth	114.88 ft	Calculated Sample Rate	364 sec
Depth to Top of Screen	104.88 ft	Sample Rate	364 sec
Screen Length	10 ft	Stabilized Drawdown	0.01 ft
Depth to Water	28.01 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	11:28:02	17.66	6.94	4565.91	10.80	1.55	-25.16
	11:34:08	17.79	6.93	4588.86	9.16	1.33	-27.32
	11:40:29	17.72	6.93	4586.32	10.10	1.26	-30.32
	11:46:33	17.80	6.93	4616.69	6.82	1.07	-31.24
	11:52:38	17.78	6.93	4601.37	9.08	1.36	-28.92
Variance in Last 3 Readings		-0.07	0.00	-2.54	0.94	-0.07	-3.00
		0.08	0.00	30.37	-3.28	-0.19	-0.92
		-0.02	0.00	-15.32	2.26	0.29	2.32

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	17.17 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	12:15:20	17.33	6.99	1269.11	15.50	0.14	12.88
	12:16:09	17.32	6.98	1270.86	14.60	0.14	16.87
	12:16:58	17.34	6.98	1270.68	14.20	0.14	20.16
	12:17:47	17.38	6.98	1269.39	11.30	0.13	23.53
	12:18:37	17.41	6.98	1269.17	9.46	0.12	27.68
Variance in Last 3 Readings		0.02	0.00	-0.18	-0.40	0.00	3.29
		0.04	0.00	-1.29	-2.90	-0.01	3.37
		0.03	0.00	-0.22	-1.84	-0.01	4.15

Notes:

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Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	GWE-5M	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	517 mL
Well Total Depth	58.03 ft	Calculated Sample Rate	103 sec
Depth to Top of Screen	48.03 ft	Sample Rate	103 sec
Screen Length	10 ft	Stabilized Drawdown	0.00 ft
Depth to Water	17.38 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	11:38:57	16.40	7.09	1361.83	83.30	0.23	-98.27
	11:40:20	16.38	7.08	1356.38	96.50	0.17	-106.08
	11:41:43	16.36	7.07	1360.12	95.50	0.14	-110.30
	11:43:06	16.33	7.06	1357.32	85.30	0.13	-112.69
	11:44:29	16.36	7.06	1355.61	73.90	0.11	-114.64
Variance in Last 3 Readings		-0.02	-0.01	3.74	-1.00	-0.03	-4.22
		-0.03	-0.01	-2.80	-10.20	-0.01	-2.39
		0.03	0.00	-1.71	-11.40	-0.02	-1.95

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	17.95 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	10:56:58	16.00	7.02	1716.66	34.30	0.22	-61.43
	10:59:17	15.94	7.02	1714.43	19.10	0.18	-69.44
	11:01:36	15.95	7.01	1710.94	9.72	0.16	-75.60
	11:03:55	15.95	7.01	1707.66	6.76	0.14	-79.98
	11:06:14	15.98	7.01	1704.36	6.41	0.13	-83.25
Variance in Last 3 Readings		0.01	-0.01	-3.49	-9.38	-0.02	-6.16
		0.00	0.00	-3.28	-2.96	-0.02	-4.38
		0.03	0.00	-3.30	-0.35	-0.01	-3.27

Notes:

In-Situ Inc.

SmartTroll
11/2/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	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	0.05 ft
Depth to Water	23.43 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	NM	NM	NM	NM	NM	NM	NM
	NM	NM	NM	NM	NM	NM	NM
	12:41:25	17.03	7.03	2257.12	41.90	0.88	-49.72
	12:42:57	16.89	7.01	2260.72	27.30	0.78	-39.04
	12:44:29	16.83	7.00	2262.37	22.70	0.71	-36.35
Variance in Last 3 Readings		NA	NA	NA	NA	NA	NA
		-0.14	-0.02	3.60	-14.60	-0.10	10.68
		-0.06	-0.01	1.65	-4.60	-0.07	2.69

Notes:

In-Situ Inc.

SmartTroll
11/2/2015

Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	PM1D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	814 mL
Well Total Depth	106.61	Calculated Sample Rate	162 sec
Depth to Top of Screen	101.61	Sample Rate	162 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	23.40 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	11:20:39	17.15	6.87	1516.59	3.42	0.15	-131.45
	11:23:02	17.07	6.86	1519.76	3.18	0.12	-133.02
	11:25:24	17.16	6.85	1513.85	2.98	0.11	-133.76
	11:27:46	17.12	6.85	1520.10	2.83	0.09	-134.25
	11:30:08	17.16	6.84	1520.20	1.99	0.09	-130.52
Variance in Last 3 Readings		0.09	-0.01	-5.91	-0.20	-0.01	-0.74
		-0.04	0.00	6.25	-0.15	-0.02	-0.49
		0.04	-0.01	0.10	-0.84	0.00	3.73

Notes:

APPENDIX B
CHAINS-OF-CUSTODY

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Blaine~~	Date: 11/2/15	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: 3Q15 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	SVOCs by 8270	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
PMID-1115	11/2/15	1230	G	W	14	N		3		1	1	1	3	2	3			
PMID-F(0.2)-1115		1230			4	Y										1	3	2 coolers
PMID-1115-AD		1230			3	N		3										
PMIM-1115		1350			14	N		3		1	1	1	3	2	3			
PMIM-F(0.2)-1115		1350			4	Y										1	3	
ESL-MW-DI-1115		1520			14	N		3		1	1	1	3	2	3			
ESL-MW-DI-F(0.2)-1115		1520			4	Y										1	3	
ESL-MW-CI-1115		1624			14	N		3		1	1	1	3	2	3	1	3	
ESL-MW-CI-F(0.2)-1115		1624			4	Y										1	3	
ESL-MW-CI-1115-EB		1705			3	N		3										
3Q15 LTM Trip Blank #1	—	—	—	—	2	N		2										
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other								2	1	4	1	1	2	1,3	3	1	3	

680-118531 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

680-118531

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 7998421505003 | Cooler Temp. (°C): Obs'd: 2.6 1.4 Corr'd: 3.0 1.8 | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder 1130	11/2/15			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company	Date/Time:	Received in Laboratory by:	Company	Date/Time:
			Michele Kersey	TA	11/3/15 09:29

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: Amanda Derhake

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Bindner~~	Date: 11/3/15	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: E. White
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: 2015 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	SVOCs by 8270	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
ESL-MW-A-1115	11/3/15	0955	G	W	14	N		3		1	1	1	3	2	3			2 coolers
ESL-MW-A-1115-MS		0955			3	N		3										
ESL-MW-A-1115-MSD		0955			3	N		3										
ESL-MW-A-F(0.2)-1115		0955			4	Y										1	3	
GWE-SD-1115		1105			14	N		3		1	1	1	3	2	3			
GWE-SD-F(0.2)-1115		1105			4	Y										1	3	
GWE-SM-1115		1145			14	N		3		1	1	1	3	2	3			
GWE-SM-F(0.2)-1115		1145			4	Y										1	3	
GWE-SS-1115		1220			14	N		3		1	1	1	3	2	3			
GWE-SS-F(0.2)-1115		1220			4	Y										1	3	
CPA-MW-5D-1115		1550			14	N		3		1	1	1	3	2	3			
CPA-MW-5D-F(0.2)-1115		1550			4	Y										1	3	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other								2	1	4	1	1	2	1,3	3	4	3	

680-118606 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

5.0/5.4 1.2/1.4

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 799807/799808 | Cooler Temp. (°C): Obs'd: _____ Corr'd. _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder	11/3/15 1515	[illegible]	TA	11/4/15 9:18
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Bindler~~	Date: 11/3/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	2 of 7 COCs
820 South Main Street	Analysis Turnaround Time			Sampler: E. White
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: 4Q15 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	SVOCs by 8270	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
4Q15 Trip Blank #2	—	—	—	—	2	N		2										2 coolers
Preservation Used: 1=Ice, 2=HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6=Other								2	1	4	1	1	2	1	3	4	3	

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

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

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

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

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

680-186606 SO/5.4 1.2/1.0

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 799847 / 799848 | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

Relinquished by	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder	11/3/15 1915	[illegible]	TA	11/4/15 9:15
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Birdner~~	Date: 11/4/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler: E. White
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-1115	11/4/15	0938	G	W	14	N		3	1	1	1	3	2	3			2 coolers
BSA-MW-5D-F(0.2)-1115		0938			4	Y									1	3	
BSA-MW-5D-1115-MS		0938			3	N		3									
BSA-MW-5D-1115-MSD		0938			3	N		3									
CPA-MW-4D-1115		1044			14	N		3	1	1	1	3	2	3			
CPA-MW-4D-F(0.2)-1115		1044			4	Y									1	3	
BSA-MW-4D-1115		1147			14	N		3	1	1	1	3	2	3			
BSA-MW-4D-F(0.2)-1115		1147			4	Y									1	3	
BSA-MW-3D-1115		1515			14	N		3	1	1	1	3	2	3			
BSA-MW-3D-F(0.2)-1115		1515			4	Y									1	3	
BSA-MW-3D-1115-EB		1605			3	N		3									
4Q15 LTM Trip Blank #3	—	—	—	—	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	

680-118652 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

680-118652 3.0/2.8(CF)3.4/3.0

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 7998605 / 7998606 | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder	11/4/15 1100	[signature]	TASav.	11-05-15 0900
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Gingrich~~	Date: 11/5/15	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: E. White
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-3D-1115	11/5/15	1155	G	W	14	N		3	1	1	1	3	2	3			2 coolers
GWE-3D-F(0.2)-1115		1155			4	Y									1	3	
CPA-MW-3D-1115		1358			14	N		3	1	1	1	3	2	3	~~1~~	~~3~~	(POW)
CPA-MW-3D-F(0.2)-1115		1358			4	Y									1	3	
CPA-MW-3D-1115-AD		1358			3	N		3									
BSA-MW-2D-1115		1454			14	N		3	1	1	1	3	2	3			
BSA-MW-2D-F(0.2)		1454			4	Y									1	3	
CPA-MW-1D-1115		1615			14	N		3	1	1	1	3	2	3			
CPA-MW-1D-F(0.2)-1115		1615			4	Y									1	3	
4Q15 LTM Trip Blank #4					2	N		2									
								2	4	1	1	2	1,3	3	4	3	

680-118729 Chain of Custody

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

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

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

Sample Disposal (A fee may be assessed if samples are retained longer ...)

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

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

680-118729

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 799871 / 799841 | Cooler Temp. (°C): Obs'd: 5.0 Corr'd: 5.4 | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder	11/5/15 1515			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
			M. Kersey	TA	11/6/15 09:54

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

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912 354 7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Bindner~~	Date: 11/7/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler: E. White
St. Charles, MO 63301	☑ CALENDAR 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: 3Q15 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	SVOCs by 8270	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
GWE-1D-1115	11/9/15	1315	G	W	14	N		3		1	1	1	3	2	3			
GWE-1D-F(0.2)-1115		1315			4	Y										1	3	
CPA-MW-2D-1115		1522			14	N		3		1	1	1	3	2	3			
CPA-MW-2D-F(0.2)-1115		1522			4	Y										1	3	
CPA-MW-2D-1115-AD		1522			3	N		3										
BSA-MW-1S-1115		1632			14	N		3		1	1	1	3	2	3			
BSA-MW-1S-F(0.2)-1115		1632			4	Y										1	3	
BSA-MW-1S-1115-EB		1730			3	N		3										
4Q15 LTM Trip Blank #5	—	—	—		2	N		2										
								2	1	4	1	1	2	1,3	3	4	3	

680-118812 Chain of Custody

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

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

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

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

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

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

9:30 1-2/1.6 CF

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. 505672 | Cooler Temp. (°C) Obs'd: _____ Corr'd: _____ Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder	11/9/15 1820	[signature]	TA	11-10-15
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time:
Relinquished by:	Company	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354 7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Pindner~~	Date: 11/10/15	COC No:
Golder Associates Inc	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler: E. White
St. Charles, MO 63301	☑ CALENDAR 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: 4Q15 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	SVOCs by 8270	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
GWE-2D-1115	11/10/15	1128	G	W	14			3		1	1	1	3	2	3			
GWE-2D-F(0.2)-1115	↓	1128	↓	↓	4											1	3	
4Q15 LTM Trip Blank #6	—	—	—	—	2													
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other								2	1	4	1	1	2	1	3	4	3	

680-118878 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

680-118878 20(CF)2.4°C

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 799880 | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder	11/10/15 1800			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA Sav.	Date/Time: 11-11-15 1155

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

APPENDIX C
QUALITY ASSURANCE REPORT

QUALITY ASSURANCE REPORT

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

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

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

December 2015 **140-3345**

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) completed a review of analytical data for the groundwater samples collected between November 2 and November 10, 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 4th Quarter 2015 (4Q15) Long-Term Monitoring Program (LTMP). Twenty-one (21) groundwater samples, six (6) trip blanks, three (3) equipment blanks (EB), three (3) analytical duplicates (AD), and two (2) matrix spike/matrix spike duplicate (MS/MSD) pairs were prepared. Groundwater monitoring locations were located at the WGK facility or approximately 1.0 to 1.5 miles north of the Site. The samples were submitted to the TestAmerica Laboratories, Inc. (TestAmerica) facility located in Savannah, Georgia for analysis using United States Environmental Protection Agency (USEPA) methods, standard methods and USEPA SW-846 test methods. Samples submitted to TestAmerica were analyzed for volatile organic compounds (VOCs), total and dissolved metals, dissolved gases, and general chemistry parameters. The analytical results were placed into six (6) sample delivery groups (SDGs) and described in the table below:

Sample Delivery Group (SDG)	Sample Identification
KPS152	PM1M-1115
	PM1D-1115
	PM1D-1115-AD
	ESL-MW-C1-1115
	ESL-MW-C1-1115-EB
	ESL-MW-D1-1115
	4Q15 LTM Trip Blank #1
KPS153	ESL-MW-A-1115
	GWE-5S-1115
	GWE-5M-1115
	GWE-5D-1115
	CPA-MW-5D-1115
	4Q15 LTM Trip Blank #2
KPS154	CPA-MW-4D-1115
	BSA-MW-3D-1115
	BSA-MW-3D-1115-EB
	BSA-MW-4D-1115
	BSA-MW-5D-1115
	4Q15 LTM Trip Blank #3

KPS155	GWE-3D-1115
	CPA-MW-1D-1115
	CPA-MW-3D-1115
	CPA-MW-3D-1115-AD
	BSA-MW-2D-1115
	4Q15 LTM Trip Blank #4
KPS156	GWE-1D-1115
	CPA-MW-2D-1115
	CPA-MW-2D-1115-AD
	BSA-MW-1S-1115
	BSA-MW-1S-1115-EB
	4Q15 LTM Trip Blank #5
KPS157	GWE-2D-1115
	4Q15 LTM Trip Blank #6

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). Six (6) 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
- F5 – Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.
- 4 – MS/MSD Control limits not applicable because the analyte present in the original sample is greater than 4 times the matrix spike concentration
- ^ - Instrument related QC is outside acceptance 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 six (6) trip blanks were also prepared and shipped for laboratory analysis. The samples were submitted to TestAmerica, placed into six (6) data packages or SDGs (KPS152, KPS153, KPS154, KPS155, KPS156, and KPS157) 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. There were no affected SDGs.

2.2 Blanks

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

Six (6) laboratory prepared trip blanks, one (1) for each SDG, were shipped and analyzed for VOCs during the 4Q15 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 4Q15 event to assess the effectiveness of the decontamination procedure. Detections were noted in the following EBs:

- BSA-MW-3D-1115-EB (SDG KPS154): chlorobenzene at 1.5 µg/L
- BSA-MW-1S-1115-EB (SDG KPS156): benzene at 130 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 4Q15 event. 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.

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 4Q15 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 six (6) data packages or SDGs (KPS152, KPS153, KPS154, KPS155, KPS156, and KPD157), 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. There were no affected SDGs.

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. Data qualification was not required.

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 PM1M, PM1D, ESL-MW-A, GWE-2D, GWE-5D, CPA-MW-1D, BSA-MW-2D, BSA-MW-4D, and BSA-MW-5D for various analytes. No MS/MSD analysis was performed for SDG KPS156 due to insufficient sample volume. 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 4Q15 sampling event from the Solutia Inc. WGK facility in general accordance with the Work Plan and USEPA functional guidelines. Although some data required qualifications due to quality control criteria that were not achieved, the data were deemed usable. Where a positive result was qualified as estimated, the analyte should be considered present. Similarly, a result that was qualified as an estimated reporting limit should be considered not present for the purposes of this program, although the limit itself may not be precise. The completeness for the entire data set was 100%.

Qualification Summary Table

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

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
4Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-4Q15 LTM
Reviewer: A. Derhake
Laboratory: TestAmerica
SDG#: KPS152
Matrix: Water

Project Manager: A. Derhake
Project Number: 140-3345
Sample Date: November 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: PM1D-1115, PM1D-F(0.2)-1115, PM1D-1115-AD, PM1M-1115, PM1M-F(0.2)-1115, ESL-MW-D1-1115, ESL-MW-D1-F(0.2)-1115, ESL-MW-C1-1115, ESL-MW-C1-F(0.2)-1115, ESL-MW-C1-1115-EB, 4Q15 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-D1-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 409205.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Chloride exceeded the recovery criteria low for the MS and MSD of sample PM1M-115 in batch 409673. Samples PM1D-115, PM1M-115, ESL-MW-D1-1115, and ESL-MW-C1-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Sample duplicate precision for analytical batch 409675 was outside control limits. Sample matrix interference is suspected. Sulfate exceeded the recovery criteria low for the MS and MSD of sample PM1M-115 in batch 409675. Samples PM1D-1115, PM1M-1115, ESL-MW-D1-1115, and ESL-MW-C1-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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

Comments: Samples were received at 1.8°C and 3.0°C, some outside the 4°C +/- 2°C criteria.

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

Comments: Detections in diluted analysis were qualified.

GC/MS Instrument Performance Check (IPC) and Internal Standards (IS)	YES	NO	NA
a) IPC analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
b) Does BFB 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 for ESL-MW-C1 were submitted with SDG KPS152. Qualification was not required.

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: Sulfate %Rec low for MSD sample associated with batch 409673. Data was not qualified on MS/MSD data alone.

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

Comments: None

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

Comments: None

Duplicates

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

Comments: Duplicate sample PM1D was submitted with SDG KPS152.

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	PM1D, PM1M, ESL-MW-D1, ESL-MW-C1

SDG KPS152

Sample Results from:

PM1M
PM1D
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: 680-118531-1
TestAmerica Sample Delivery Group: KPS152
Client Project/Site: 4Q15 LTM GW Sampling - 1403345
Revision: 1

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

Attn: Mr. Jerry Rinaldi

Michele R Kersey

Authorized for release by:
12/2/2015 9:34:04 AM

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

LINKS

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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.

AMJ 12/3/15

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PWD
11/27/15

Job ID: 680-118531-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 4Q15 LTM GW Sampling - 1403345

Report Number: 680-118531-1

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

RECEIPT
The samples were received on 11/3/2015 9:29 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 3.0° C.

NOTE: Report revised to remove erroneous statement under Sulfide.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples PM1D-1115 (680-118531-1), PM1D-1115-AD (680-118531-3), PM1M-1115 (680-118531-4), ESL-MW-D1-1115 (680-118531-6), ESL-MW-C1-1115 (680-118531-8), ESL-MW-C1-1115-EB (680-118531-10) and 4Q15 LTM Trip Blank #1 (680-118531-11) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/06/2015.

Sample ESL-MW-D1-1115 (680-118531-6)[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-1115 (680-118531-1), PM1M-1115 (680-118531-4), ESL-MW-D1-1115 (680-118531-6) and ESL-MW-C1-1115 (680-118531-8) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 11/05/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-409205.

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)-1115 (680-118531-2), PM1M-F(0.2)-1115 (680-118531-5), ESL-MW-D1-F(0.2)-1115 (680-118531-7) and ESL-MW-C1-F(0.2)-1115 (680-118531-9) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/06/2015 and analyzed on 11/09/2015.

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

METALS (ICP)
Samples PM1D-1115 (680-118531-1), PM1M-1115 (680-118531-4), ESL-MW-D1-1115 (680-118531-6) and ESL-MW-C1-1115 (680-118531-8) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/06/2015 and analyzed on 11/09/2015.

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

MWP 11/27/15

Job ID: 680-118531-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

ALKALINITY
Samples PM1D-1115 (680-118531-1), PM1M-1115 (680-118531-4), ESL-MW-D1-1115 (680-118531-6) and ESL-MW-C1-1115 (680-118531-8) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 11/07/2015.

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

CHLORIDE
Samples PM1D-1115 (680-118531-1), PM1M-1115 (680-118531-4), ESL-MW-D1-1115 (680-118531-6) and ESL-MW-C1-1115 (680-118531-8) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 11/09/2015.

Chloride exceeded the recovery criteria low for the MS and MSD of sample PM1M-1115 (680-118531-4) in batch 680-409673.

Samples PM1D-1115 (680-118531-1)[2X], PM1M-1115 (680-118531-4)[10X], ESL-MW-D1-1115 (680-118531-6)[5X] and ESL-MW-C1-1115 (680-118531-8)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

NITRATE-NITRITE AS NITROGEN
Samples PM1D-1115 (680-118531-1), PM1M-1115 (680-118531-4), ESL-MW-D1-1115 (680-118531-6) and ESL-MW-C1-1115 (680-118531-8) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 11/03/2015.

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

SULFATE
Samples PM1D-1115 (680-118531-1), PM1M-1115 (680-118531-4), ESL-MW-D1-1115 (680-118531-6) and ESL-MW-C1-1115 (680-118531-8) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 11/09/2015.

The sample duplicate (DUP) precision for analytical batch 680-409675 was outside control limits. Sample matrix interference is suspected.

Sulfate exceeded the recovery criteria low for the MS and MSD of sample PM1M-1115 (680-118531-4) in batch 680-409675.

Samples PM1D-1115 (680-118531-1)[20X], PM1M-1115 (680-118531-4)[10X], ESL-MW-D1-1115 (680-118531-6)[20X] and ESL-MW-C1-1115 (680-118531-8)[50X] 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-1115 (680-118531-1), PM1M-1115 (680-118531-4), ESL-MW-D1-1115 (680-118531-6) and ESL-MW-C1-1115 (680-118531-8) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 11/12/2015.

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)-1115 (680-118531-2), PM1M-F(0.2)-1115 (680-118531-5), ESL-MW-D1-F(0.2)-1115 (680-118531-7) and ESL-MW-C1-F(0.2)-1115 (680-118531-9) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 11/18/2015.

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

MWD
11/27/15

Sample Summary

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-118531-1	PM1D-1115	Water	11/02/15 12:30	11/03/15 09:29
680-118531-2	PM1D-F(0.2)-1115	Water	11/02/15 12:30	11/03/15 09:29
680-118531-3	PM1D-1115-AD	Water	11/02/15 12:30	11/03/15 09:29
680-118531-4	PM1M-1115	Water	11/02/15 13:50	11/03/15 09:29
680-118531-5	PM1M-F(0.2)-1115	Water	11/02/15 13:50	11/03/15 09:29
680-118531-6	ESL-MW-D1-1115	Water	11/02/15 15:20	11/03/15 09:29
680-118531-7	ESL-MW-D1-F(0.2)-1115	Water	11/02/15 15:20	11/03/15 09:29
680-118531-8	ESL-MW-C1-1115	Water	11/02/15 16:24	11/03/15 09:29
680-118531-9	ESL-MW-C1-F(0.2)-1115	Water	11/02/15 16:24	11/03/15 09:29
680-118531-10	ESL-MW-C1-1115-EB	Water	11/02/15 17:05	11/03/15 09:29
680-118531-11	4Q15 LTM Trip Blank #1	Water	11/02/15 00:00	11/03/15 09:29

MMP
11/27/15

Method Summary

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

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 SAV
415.1	DOC	MCAWW	TAL SAV

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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

TestAmerica Savannah

AWD
11/27/15

Definitions/Glossary

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

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.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

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

MWD 11/27/15

Detection Summary

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: PM1D-1115 — Lab Sample ID: 680-118531-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	21		1.0		ug/L	1		8260B	Total/NA
Methane	46		0.58		ug/L	1		RSK-175	Total/NA
Iron	15		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.52		0.010		mg/L	1		6010C	Total Recoverable
Chloride	88	D	2.0		mg/L	2		325.2	Total/NA
Sulfate	460	D	100		mg/L	20		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	9.0		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: PM1D-F(0.2)-1115 — Lab Sample ID: 680-118531-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	15		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.52		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	2.0		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: PM1D-1115-AD — Lab Sample ID: 680-118531-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	22		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: PM1M-1115 — Lab Sample ID: 680-118531-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	33		0.58		ug/L	1		RSK-175	Total/NA
Iron	1.6		0.050		mg/L	1		6010C	Total Recoverable
Manganese	2.0		0.010		mg/L	1		6010C	Total Recoverable
Chloride	380	D	10		mg/L	10		325.2	Total/NA
Sulfate	220	D	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	560		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	15		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: PM1M-F(0.2)-1115 — Lab Sample ID: 680-118531-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	1.4		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	2.1		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-D1-1115 — Lab Sample ID: 680-118531-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	14	D	10		ug/L	10		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah

AWD 11/27/2015

Detection Summary

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: ESL-MW-D1-1115 (Continued) — Lab Sample ID: 680-118531-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	1100	D	10		ug/L	10		8260B	Total/NA
1,4-Dichlorobenzene	39	D	10		ug/L	10		8260B	Total/NA
Methane	51		0.58		ug/L	1		RSK-175	Total/NA
Iron	12		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.37		0.010		mg/L	1		6010C	Total Recoverable
Chloride	110	D	5.0		mg/L	5		325.2	Total/NA
Sulfate	710	D	100		mg/L	20		375.4	Total/NA
Total Organic Carbon	3.3		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	8.7		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: ESL-MW-D1-F(0.2)-1115 — Lab Sample ID: 680-118531-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	13		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.38		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	3.7		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: ESL-MW-C1-1115 — Lab Sample ID: 680-118531-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	4.3		0.58		ug/L	1		RSK-175	Total/NA
Iron	10		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.40		0.010		mg/L	1		6010C	Total Recoverable
Chloride	110	D	5.0		mg/L	5		325.2	Total/NA
Sulfate	870	D	250		mg/L	50		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	8.1		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: ESL-MW-C1-F(0.2)-1115 — Lab Sample ID: 680-118531-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	11		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.40		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.1		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: ESL-MW-C1-1115-EB — Lab Sample ID: 680-118531-10

No Detections.

Client Sample ID: 4Q15 LTM Trip Blank #1 — Lab Sample ID: 680-118531-11

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah

MWP 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: PM1D-1115

Lab Sample ID: 680-118531-1

Date Collected: 11/02/15 12:30
Date Received: 11/03/15 09:29

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			11/06/15 13:32	1
Chlorobenzene	21		1.0		ug/L			11/06/15 13:32	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 13:32	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 13:32	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 13:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*11/06/15 13:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 130*		*11/06/15 13:32*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*11/06/15 13:32*	*1*
4-Bromofluorobenzene (Surr)	*122*		*70 - 130*		*11/06/15 13:32*	*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			11/05/15 20:19	1
Ethylene	1.0	U	1.0		ug/L			11/05/15 20:19	1
Methane	46		0.58		ug/L			11/05/15 20:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	15		0.050		mg/L		11/06/15 14:40	11/09/15 22:54	1
Manganese	0.52		0.010		mg/L		11/06/15 14:40	11/09/15 22:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	88	D	2.0		mg/L			11/09/15 10:19	2
Nitrate as N	0.050	U	0.050		mg/L			11/03/15 16:10	1
Sulfate	460	D	100		mg/L			11/09/15 14:13	20
Total Organic Carbon	2.4		1.0		mg/L			11/12/15 22:25	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	410		5.0		mg/L			11/07/15 16:24	1
Carbon Dioxide, Free	9.0		5.0		mg/L			11/07/15 16:24	1

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TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: PM1D-F(0.2)-1115

Lab Sample ID: 680-118531-2

Date Collected: 11/02/15 12:30
Date Received: 11/03/15 09:29

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	15		0.050		mg/L		11/06/15 14:40	11/09/15 22:58	1
Manganese, Dissolved	0.52		0.010		mg/L		11/06/15 14:40	11/09/15 22:58	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.0		1.0		mg/L			11/18/15 01:05	1

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11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: PM1D-1115-AD

Lab Sample ID: 680-118531-3

Date Collected: 11/02/15 12:30
Date Received: 11/03/15 09:29

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			11/06/15 13:55	1
Chlorobenzene	**22**		1.0		ug/L			11/06/15 13:55	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 13:55	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 13:55	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 13:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*11/06/15 13:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*		*11/06/15 13:55*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*11/06/15 13:55*	*1*
4-Bromofluorobenzene (Surr)	*125*		*70 - 130*		*11/06/15 13:55*	*1*

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MWP 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: PM1M-1115

Lab Sample ID: 680-118531-4

Date Collected: 11/02/15 13:50
Date Received: 11/03/15 09:29

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			11/06/15 14:18	1
Chlorobenzene	1.0	U	1.0		ug/L			11/06/15 14:18	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 14:18	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 14:18	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 14:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*11/06/15 14:18*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*11/06/15 14:18*	*1*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*11/06/15 14:18*	*1*
4-Bromofluorobenzene (Surr)	*119*		*70 - 130*		*11/06/15 14:18*	*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			11/05/15 20:32	1
Ethylene	1.0	U	1.0		ug/L			11/05/15 20:32	1
Methane	33		0.58		ug/L			11/05/15 20:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.6		0.050		mg/L		11/06/15 14:40	11/09/15 23:03	1
Manganese	2.0		0.010		mg/L		11/06/15 14:40	11/09/15 23:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	380	D	10		mg/L			11/09/15 11:06	10
Nitrate as N	0.050	U	0.050		mg/L			11/03/15 16:13	1
Sulfate	220	D	50		mg/L			11/09/15 15:57	10
Total Organic Carbon	2.5		1.0		mg/L			11/12/15 23:03	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	560		5.0		mg/L			11/07/15 16:34	1
Carbon Dioxide, Free	15		5.0		mg/L			11/07/15 16:34	1

MWD 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: PM1M-F(0.2)-1115

Lab Sample ID: 680-118531-5

Date Collected: 11/02/15 13:50
Date Received: 11/03/15 09:29

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	1.4		0.050		mg/L		11/06/15 14:40	11/09/15 23:07	1
Manganese, Dissolved	2.1		0.010		mg/L		11/06/15 14:40	11/09/15 23:07	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.8		1.0		mg/L			11/18/15 01:47	1

8

MMP 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: ESL-MW-D1-1115

Lab Sample ID: 680-118531-6

Date Collected: 11/02/15 15:20
Date Received: 11/03/15 09:29

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	14	D	10		ug/L			11/06/15 18:09	10
Chlorobenzene	1100	D	10		ug/L			11/06/15 18:09	10
1,2-Dichlorobenzene	10	U	10		ug/L			11/06/15 18:09	10
1,3-Dichlorobenzene	10	U	10		ug/L			11/06/15 18:09	10
1,4-Dichlorobenzene	39	D	10		ug/L			11/06/15 18:09	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*11/06/15 18:09*	*10*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 130*		*11/06/15 18:09*	*10*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*11/06/15 18:09*	*10*
4-Bromofluorobenzene (Surr)	*129*		*70 - 130*		*11/06/15 18:09*	*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			11/05/15 20:45	1
Ethylene	1.0	U	1.0		ug/L			11/05/15 20:45	1
Methane	51		0.58		ug/L			11/05/15 20:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	12		0.050		mg/L		11/06/15 14:40	11/09/15 23:11	1
Manganese	0.37		0.010		mg/L		11/06/15 14:40	11/09/15 23:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	110	D	5.0		mg/L			11/09/15 11:04	5
Nitrate as N	0.050	U	0.050		mg/L			11/03/15 16:15	1
Sulfate	710	D	100		mg/L			11/09/15 14:13	20
Total Organic Carbon	3.3		1.0		mg/L			11/12/15 23:17	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	410		5.0		mg/L			11/07/15 16:44	1
Carbon Dioxide, Free	8.7		5.0		mg/L			11/07/15 16:44	1

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TestAmerica Savannah

11/30/15

Client Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: ESL-MW-D1-F(0.2)-1115

Lab Sample ID: 680-118531-7

Date Collected: 11/02/15 15:20
Date Received: 11/03/15 09:29

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	13		0.050		mg/L		11/06/15 14:40	11/09/15 23:15	1
Manganese, Dissolved	0.38		0.010		mg/L		11/06/15 14:40	11/09/15 23:15	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.7		1.0		mg/L			11/18/15 02:04	1

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TestAmerica Savannah
11/27/15
MW

Client Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: ESL-MW-C1-1115

Lab Sample ID: 680-118531-8
Matrix: Water

Date Collected: 11/02/15 16:24
Date Received: 11/03/15 09:29

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			11/06/15 14:41	1
Chlorobenzene	1.0	U	1.0		ug/L			11/06/15 14:41	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 14:41	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 14:41	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 14:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*11/06/15 14:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*		*11/06/15 14:41*	*1*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*11/06/15 14:41*	*1*
4-Bromofluorobenzene (Surr)	*124*		*70 - 130*		*11/06/15 14:41*	*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			11/05/15 20:58	1
Ethylene	1.0	U	1.0		ug/L			11/05/15 20:58	1
Methane	4.3		0.58		ug/L			11/05/15 20:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	10		0.050		mg/L		11/06/15 14:40	11/09/15 23:27	1
Manganese	0.40		0.010		mg/L		11/06/15 14:40	11/09/15 23:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	110	D	5.0		mg/L			11/09/15 11:04	5
Nitrate as N	0.050	U	0.050		mg/L			11/03/15 16:16	1
Sulfate	870	D	250		mg/L			11/09/15 14:19	50
Total Organic Carbon	4.0		1.0		mg/L			11/12/15 23:29	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	420		5.0		mg/L			11/07/15 17:06	1
Carbon Dioxide, Free	8.1		5.0		mg/L			11/07/15 17:06	1

Client Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: ESL-MW-C1-F(0.2)-1115

Lab Sample ID: 680-118531-9

Date Collected: 11/02/15 16:24
Date Received: 11/03/15 09:29

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		11/06/15 14:40	11/09/15 23:31	1
Manganese, Dissolved	0.40		0.010		mg/L		11/06/15 14:40	11/09/15 23:31	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.1		1.0		mg/L			11/18/15 02:19	1

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MMP 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: ESL-MW-C1-1115-EB

Lab Sample ID: 680-118531-10

Date Collected: 11/02/15 17:05
Date Received: 11/03/15 09:29

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			11/06/15 15:05	1
Chlorobenzene	1.0	U	1.0		ug/L			11/06/15 15:05	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 15:05	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 15:05	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 15:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*11/06/15 15:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*		*11/06/15 15:05*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*11/06/15 15:05*	*1*
4-Bromofluorobenzene (Surr)	*126*		*70 - 130*		*11/06/15 15:05*	*1*

Client Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: 4Q15 LTM Trip Blank #1

Lab Sample ID: 680-118531-11

Date Collected: 11/02/15 00:00
Date Received: 11/03/15 09:29

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			11/06/15 12:46	1
Chlorobenzene	1.0	U	1.0		ug/L			11/06/15 12:46	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 12:46	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 12:46	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 12:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*11/06/15 12:46*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 130*		*11/06/15 12:46*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*11/06/15 12:46*	*1*
4-Bromofluorobenzene (Surr)	*127*		*70 - 130*		*11/06/15 12:46*	*1*

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lmp 11/27/15

Surrogate Summary

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

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)
680-118531-1	PM1D-1115	100	91	96	122
680-118531-3	PM1D-1115-AD	101	93	96	125
680-118531-4	PM1M-1115	100	94	97	119
680-118531-6	ESL-MW-D1-1115	101	108	106	129
680-118531-8	ESL-MW-C1-1115	101	96	98	124
680-118531-10	ESL-MW-C1-1115-EB	100	93	96	126
680-118531-11	4Q15 LTM Trip Blank #1	99	91	96	127
LCS 680-409248/4	Lab Control Sample	101	98	104	118
LCSD 680-409248/5	Lab Control Sample Dup	101	99	106	117
MB 680-409248/9	Method Blank	100	95	98	124

Surrogate Legend

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

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AWO 11/27/15

QC Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

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

Lab Sample ID: MB 680-409248/9
Matrix: Water
Analysis Batch: 409248

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			11/06/15 12:23	1
Chlorobenzene	1.0	U	1.0		ug/L			11/06/15 12:23	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 12:23	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 12:23	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 12:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*11/06/15 12:23*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*11/06/15 12:23*	*1*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*11/06/15 12:23*	*1*
4-Bromofluorobenzene (Surr)	*124*		*70 - 130*		*11/06/15 12:23*	*1*

Lab Sample ID: LCS 680-409248/4
Matrix: Water
Analysis Batch: 409248

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	48.5		ug/L		97	73 - 131
Chlorobenzene	50.0	51.4		ug/L		103	80 - 120
1,2-Dichlorobenzene	50.0	46.4		ug/L		93	80 - 120
1,3-Dichlorobenzene	50.0	53.4		ug/L		107	80 - 120
1,4-Dichlorobenzene	50.0	49.5		ug/L		99	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*
Dibromofluoromethane (Surr)	*104*		*70 - 130*
4-Bromofluorobenzene (Surr)	*118*		*70 - 130*

Lab Sample ID: LCSD 680-409248/5
Matrix: Water
Analysis Batch: 409248

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	1	30
Chlorobenzene	50.0	52.2		ug/L		104	80 - 120	2	20
1,2-Dichlorobenzene	50.0	47.1		ug/L		94	80 - 120	2	20
1,3-Dichlorobenzene	50.0	54.0		ug/L		108	80 - 120	1	20
1,4-Dichlorobenzene	50.0	50.6		ug/L		101	80 - 120	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*
Dibromofluoromethane (Surr)	*106*		*70 - 130*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*

QC Sample Results

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-409205/9
Matrix: Water
Analysis Batch: 409205

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			11/05/15 19:27	1
Ethylene	1.0	U	1.0		ug/L			11/05/15 19:27	1
Methane	0.58	U	0.58		ug/L			11/05/15 19:27	1
Methane (TCD)	390	U	390		ug/L			11/05/15 19:27	1

Lab Sample ID: LCS 680-409205/3
Matrix: Water
Analysis Batch: 409205

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	282		ug/L		98	75 - 125
Ethylene	269	263		ug/L		98	75 - 125
Methane	154	141		ug/L		92	75 - 125

Lab Sample ID: LCS 680-409205/6
Matrix: Water
Analysis Batch: 409205

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	1740		ug/L		90	75 - 125

Lab Sample ID: LCSD 680-409205/4
Matrix: Water
Analysis Batch: 409205

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	272		ug/L		94	75 - 125	4	30
Ethylene	269	252		ug/L		94	75 - 125	5	30
Methane	154	135		ug/L		88	75 - 125	4	30

Lab Sample ID: LCSD 680-409205/7
Matrix: Water
Analysis Batch: 409205

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	1720		ug/L		89	75 - 125	1	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-409356/1-A
Matrix: Water
Analysis Batch: 409694

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 409356

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		11/06/15 14:40	11/09/15 21:36	1
Iron, Dissolved	0.050	U	0.050		mg/L		11/06/15 14:40	11/09/15 21:36	1
Manganese	0.010	U	0.010		mg/L		11/06/15 14:40	11/09/15 21:36	1
Manganese, Dissolved	0.010	U	0.010		mg/L		11/06/15 14:40	11/09/15 21:36	1

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

Lab Sample ID: LCS 680-409356/2-A
Matrix: Water
Analysis Batch: 409694

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 409356

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.18		mg/L		104	80 - 120
Iron, Dissolved	5.00	5.18		mg/L		104	80 - 120
Manganese	0.500	0.531		mg/L		106	80 - 120
Manganese, Dissolved	0.500	0.531		mg/L		106	80 - 120

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-409474/7
Matrix: Water
Analysis Batch: 409474

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			11/07/15 12:56	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/07/15 12:56	1

Lab Sample ID: LCS 680-409474/8
Matrix: Water
Analysis Batch: 409474

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	248	282		mg/L		114	80 - 120

Lab Sample ID: LCSD 680-409474/33
Matrix: Water
Analysis Batch: 409474

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	248	265		mg/L		107	80 - 120	6	30

Lab Sample ID: 680-118531-6 DU
Matrix: Water
Analysis Batch: 409474

Client Sample ID: ESL-MW-D1-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	410		398		mg/L		2	30
Carbon Dioxide, Free	8.7		7.79		mg/L		11	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-409673/32
Matrix: Water
Analysis Batch: 409673

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			11/09/15 10:35	1

MMP 11/27/15

Method: 325.2 - Chloride (Continued)

Lab Sample ID: LCS 680-409673/33 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409673

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.4		mg/L		102	85 - 115

Lab Sample ID: LCSD 680-409673/37 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409673

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	25.0	25.4		mg/L		102	85 - 115	0	30

Lab Sample ID: 680-118531-4 MS — **Client Sample ID: PM1M-1115**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409673

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	380		25.0	391	4	mg/L		47	85 - 115

Lab Sample ID: 680-118531-4 MSD — **Client Sample ID: PM1M-1115**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409673

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	380		25.0	395	4	mg/L		66	85 - 115	1	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-408824/13 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 408824

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			11/03/15 15:59	1

Lab Sample ID: LCS 680-408824/16 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 408824

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.515		mg/L		103	75 - 125
Nitrate Nitrite as N	1.00	1.01		mg/L		101	90 - 110
Nitrite as N	0.500	0.495		mg/L		99	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-409675/46 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409675

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			11/09/15 16:13	1

Method: 375.4 - Sulfate (Continued)

Lab Sample ID: LCS 680-409675/50 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409675

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			20.0	21.0		mg/L		105	75 - 125		

Lab Sample ID: LCSD 680-409675/16 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409675

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate			20.0	20.7		mg/L		104	75 - 125	2	30

Lab Sample ID: 680-118531-4 MS — **Client Sample ID: PM1M-1115**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409675

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	220		20.0	233	4	mg/L		70	75 - 125		

Lab Sample ID: 680-118531-4 MSD — **Client Sample ID: PM1M-1115**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409675

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	220		20.0	234	4	mg/L		74	75 - 125	0	30

Method: 415.1 - DOC

Lab Sample ID: MB 680-410972/50 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 410972

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			11/18/15 00:37	1

Lab Sample ID: LCS 680-410972/51 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 410972

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Dissolved Organic Carbon			20.0	16.0		mg/L		80	80 - 120		

Lab Sample ID: 680-118531-2 MS — **Client Sample ID: PM1D-F(0.2)-1115**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 410972

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Dissolved Organic Carbon	2.0		20.0	21.2		mg/L		96	80 - 120		

11/27/15

Method: 415.1 - DOC (Continued)

Lab Sample ID: 680-118531-2 MSD — **Client Sample ID: PM1D-F(0.2)-1115**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 410972

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	2.0		20.0	22.3		mg/L		101	80 - 120	5	20

Method: 415.1 - TOC

Lab Sample ID: MB 680-410378/43 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410378

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			11/12/15 21:34	1

Lab Sample ID: LCS 680-410378/46 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410378

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.2		mg/L		96	80 - 120

Lab Sample ID: LLCS 680-410378/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410378

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.00	1.44		mg/L		144	50 - 150

Lab Sample ID: 680-118531-1 MS — **Client Sample ID: PM1D-1115**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410378

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	2.4		20.0	21.8		mg/L		97	80 - 120

Lab Sample ID: 680-118531-1 MSD — **Client Sample ID: PM1D-1115**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410378

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	2.4		20.0	21.0		mg/L		93	80 - 120	3	25

QC Association Summary

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

GC/MS VOA

Analysis Batch: 409248

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118531-1	PM1D-1115	Total/NA	Water	8260B	
680-118531-3	PM1D-1115-AD	Total/NA	Water	8260B	
680-118531-4	PM1M-1115	Total/NA	Water	8260B	
680-118531-6	ESL-MW-D1-1115	Total/NA	Water	8260B	
680-118531-8	ESL-MW-C1-1115	Total/NA	Water	8260B	
680-118531-10	ESL-MW-C1-1115-EB	Total/NA	Water	8260B	
680-118531-11	4Q15 LTM Trip Blank #1	Total/NA	Water	8260B	
LCS 680-409248/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-409248/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-409248/9	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 409205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118531-1	PM1D-1115	Total/NA	Water	RSK-175	
680-118531-4	PM1M-1115	Total/NA	Water	RSK-175	
680-118531-6	ESL-MW-D1-1115	Total/NA	Water	RSK-175	
680-118531-8	ESL-MW-C1-1115	Total/NA	Water	RSK-175	
LCS 680-409205/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-409205/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-409205/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-409205/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-409205/9	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 409356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118531-1	PM1D-1115	Total Recoverable	Water	3005A	
680-118531-2	PM1D-F(0.2)-1115	Dissolved	Water	3005A	
680-118531-4	PM1M-1115	Total Recoverable	Water	3005A	
680-118531-5	PM1M-F(0.2)-1115	Dissolved	Water	3005A	
680-118531-6	ESL-MW-D1-1115	Total Recoverable	Water	3005A	
680-118531-7	ESL-MW-D1-F(0.2)-1115	Dissolved	Water	3005A	
680-118531-8	ESL-MW-C1-1115	Total Recoverable	Water	3005A	
680-118531-9	ESL-MW-C1-F(0.2)-1115	Dissolved	Water	3005A	
LCS 680-409356/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-409356/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 409694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118531-1	PM1D-1115	Total Recoverable	Water	6010C	409356
680-118531-2	PM1D-F(0.2)-1115	Dissolved	Water	6010C	409356
680-118531-4	PM1M-1115	Total Recoverable	Water	6010C	409356
680-118531-5	PM1M-F(0.2)-1115	Dissolved	Water	6010C	409356
680-118531-6	ESL-MW-D1-1115	Total Recoverable	Water	6010C	409356
680-118531-7	ESL-MW-D1-F(0.2)-1115	Dissolved	Water	6010C	409356
680-118531-8	ESL-MW-C1-1115	Total Recoverable	Water	6010C	409356
680-118531-9	ESL-MW-C1-F(0.2)-1115	Dissolved	Water	6010C	409356

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AMP 11/27/15

QC Association Summary

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Metals (Continued)

Analysis Batch: 409694 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-409356/2-A	Lab Control Sample	Total Recoverable	Water	6010C	409356
MB 680-409356/1-A	Method Blank	Total Recoverable	Water	6010C	409356

General Chemistry

Analysis Batch: 408824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118531-1	PM1D-1115	Total/NA	Water	353.2	
680-118531-4	PM1M-1115	Total/NA	Water	353.2	
680-118531-6	ESL-MW-D1-1115	Total/NA	Water	353.2	
680-118531-8	ESL-MW-C1-1115	Total/NA	Water	353.2	
LCS 680-408824/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-408824/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 409474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118531-1	PM1D-1115	Total/NA	Water	310.1	
680-118531-4	PM1M-1115	Total/NA	Water	310.1	
680-118531-6	ESL-MW-D1-1115	Total/NA	Water	310.1	
680-118531-6 DU	ESL-MW-D1-1115	Total/NA	Water	310.1	
680-118531-8	ESL-MW-C1-1115	Total/NA	Water	310.1	
LCS 680-409474/8	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-409474/33	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-409474/7	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 409673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118531-1	PM1D-1115	Total/NA	Water	325.2	
680-118531-4	PM1M-1115	Total/NA	Water	325.2	
680-118531-4 MS	PM1M-1115	Total/NA	Water	325.2	
680-118531-4 MSD	PM1M-1115	Total/NA	Water	325.2	
680-118531-6	ESL-MW-D1-1115	Total/NA	Water	325.2	
680-118531-8	ESL-MW-C1-1115	Total/NA	Water	325.2	
LCS 680-409673/33	Lab Control Sample	Total/NA	Water	325.2	
LCSD 680-409673/37	Lab Control Sample Dup	Total/NA	Water	325.2	
MB 680-409673/32	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 409675

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118531-1	PM1D-1115	Total/NA	Water	375.4	
680-118531-4	PM1M-1115	Total/NA	Water	375.4	
680-118531-4 MS	PM1M-1115	Total/NA	Water	375.4	
680-118531-4 MSD	PM1M-1115	Total/NA	Water	375.4	
680-118531-6	ESL-MW-D1-1115	Total/NA	Water	375.4	
680-118531-8	ESL-MW-C1-1115	Total/NA	Water	375.4	
LCS 680-409675/50	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-409675/16	Lab Control Sample Dup	Total/NA	Water	375.4	
MB 680-409675/46	Method Blank	Total/NA	Water	375.4	

QC Association Summary

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

General Chemistry (Continued)

Analysis Batch: 410378

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118531-1	PM1D-1115	Total/NA	Water	415.1	
680-118531-1 MS	PM1D-1115	Total/NA	Water	415.1	
680-118531-1 MSD	PM1D-1115	Total/NA	Water	415.1	
680-118531-4	PM1M-1115	Total/NA	Water	415.1	
680-118531-6	ESL-MW-D1-1115	Total/NA	Water	415.1	
680-118531-8	ESL-MW-C1-1115	Total/NA	Water	415.1	
LCS 680-410378/46	Lab Control Sample	Total/NA	Water	415.1	
LLCS 680-410378/4	Lab Control Sample	Total/NA	Water	415.1	
MB 680-410378/43	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 410972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118531-2	PM1D-F(0.2)-1115	Dissolved	Water	415.1	
680-118531-2 MS	PM1D-F(0.2)-1115	Dissolved	Water	415.1	
680-118531-2 MSD	PM1D-F(0.2)-1115	Dissolved	Water	415.1	
680-118531-5	PM1M-F(0.2)-1115	Dissolved	Water	415.1	
680-118531-7	ESL-MW-D1-F(0.2)-1115	Dissolved	Water	415.1	
680-118531-9	ESL-MW-C1-F(0.2)-1115	Dissolved	Water	415.1	
LCS 680-410972/51	Lab Control Sample	Dissolved	Water	415.1	
MB 680-410972/50	Method Blank	Dissolved	Water	415.1	

TestAmerica Savannah
MMP 11/27/15

Lab Chronicle

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: PM1D-1115

Lab Sample ID: 680-118531-1
Matrix: Water

Date Collected: 11/02/15 12:30
Date Received: 11/03/15 09:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409248	11/06/15 13:32	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409205	11/05/15 20:19	AAH	TAL SAV
Total Recoverable	Prep	3005A			409356	11/06/15 14:40	KMN	TAL SAV
Total Recoverable	Analysis	6010C		1	409694	11/09/15 22:54	BCB	TAL SAV
Total/NA	Analysis	310.1		1	409474	11/07/15 16:24	KLD	TAL SAV
Total/NA	Analysis	325.2		2	409673	11/09/15 10:19	JME	TAL SAV
Total/NA	Analysis	353.2		1	408824	11/03/15 16:10	GRX	TAL SAV
Total/NA	Analysis	375.4		20	409675	11/09/15 14:13	JME	TAL SAV
Total/NA	Analysis	415.1		1	410378	11/12/15 22:25	KMB	TAL SAV

Client Sample ID: PM1D-F(0.2)-1115

Lab Sample ID: 680-118531-2
Matrix: Water

Date Collected: 11/02/15 12:30
Date Received: 11/03/15 09:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409356	11/06/15 14:40	KMN	TAL SAV
Dissolved	Analysis	6010C		1	409694	11/09/15 22:58	BCB	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 01:05	KMB	TAL SAV

Client Sample ID: PM1D-1115-AD

Lab Sample ID: 680-118531-3
Matrix: Water

Date Collected: 11/02/15 12:30
Date Received: 11/03/15 09:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409248	11/06/15 13:55	CEJ	TAL SAV

Client Sample ID: PM1M-1115

Lab Sample ID: 680-118531-4
Matrix: Water

Date Collected: 11/02/15 13:50
Date Received: 11/03/15 09:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409248	11/06/15 14:18	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409205	11/05/15 20:32	AAH	TAL SAV
Total Recoverable	Prep	3005A			409356	11/06/15 14:40	KMN	TAL SAV
Total Recoverable	Analysis	6010C		1	409694	11/09/15 23:03	BCB	TAL SAV
Total/NA	Analysis	310.1		1	409474	11/07/15 16:34	KLD	TAL SAV
Total/NA	Analysis	325.2		10	409673	11/09/15 11:06	JME	TAL SAV
Total/NA	Analysis	353.2		1	408824	11/03/15 16:13	GRX	TAL SAV
Total/NA	Analysis	375.4		10	409675	11/09/15 15:57	JME	TAL SAV
Total/NA	Analysis	415.1		1	410378	11/12/15 23:03	KMB	TAL SAV

TestAmerica Savannah
11/27/15

Lab Chronicle

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: PM1M-F(0.2)-1115

Lab Sample ID: 680-118531-5
Matrix: Water

Date Collected: 11/02/15 13:50
Date Received: 11/03/15 09:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409356	11/06/15 14:40	KMN	TAL SAV
Dissolved	Analysis	6010C		1	409694	11/09/15 23:07	BCB	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 01:47	KMB	TAL SAV

Client Sample ID: ESL-MW-D1-1115

Lab Sample ID: 680-118531-6
Matrix: Water

Date Collected: 11/02/15 15:20
Date Received: 11/03/15 09:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	409248	11/06/15 18:09	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409205	11/05/15 20:45	AAH	TAL SAV
Total Recoverable	Prep	3005A			409356	11/06/15 14:40	KMN	TAL SAV
Total Recoverable	Analysis	6010C		1	409694	11/09/15 23:11	BCB	TAL SAV
Total/NA	Analysis	310.1		1	409474	11/07/15 16:44	KLD	TAL SAV
Total/NA	Analysis	325.2		5	409673	11/09/15 11:04	JME	TAL SAV
Total/NA	Analysis	353.2		1	408824	11/03/15 16:15	GRX	TAL SAV
Total/NA	Analysis	375.4		20	409675	11/09/15 14:13	JME	TAL SAV
Total/NA	Analysis	415.1		1	410378	11/12/15 23:17	KMB	TAL SAV

Client Sample ID: ESL-MW-D1-F(0.2)-1115

Lab Sample ID: 680-118531-7
Matrix: Water

Date Collected: 11/02/15 15:20
Date Received: 11/03/15 09:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409356	11/06/15 14:40	KMN	TAL SAV
Dissolved	Analysis	6010C		1	409694	11/09/15 23:15	BCB	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 02:04	KMB	TAL SAV

Client Sample ID: ESL-MW-C1-1115

Lab Sample ID: 680-118531-8
Matrix: Water

Date Collected: 11/02/15 16:24
Date Received: 11/03/15 09:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409248	11/06/15 14:41	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409205	11/05/15 20:58	AAH	TAL SAV
Total Recoverable	Prep	3005A			409356	11/06/15 14:40	KMN	TAL SAV
Total Recoverable	Analysis	6010C		1	409694	11/09/15 23:27	BCB	TAL SAV
Total/NA	Analysis	310.1		1	409474	11/07/15 17:06	KLD	TAL SAV
Total/NA	Analysis	325.2		5	409673	11/09/15 11:04	JME	TAL SAV
Total/NA	Analysis	353.2		1	408824	11/03/15 16:16	GRX	TAL SAV
Total/NA	Analysis	375.4		50	409675	11/09/15 14:19	JME	TAL SAV

Lab Chronicle

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

Client Sample ID: ESL-MW-C1-1115

Lab Sample ID: 680-118531-8

Date Collected: 11/02/15 16:24
Date Received: 11/03/15 09:29

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	415.1		1	410378	11/12/15 23:29	KMB	TAL SAV

Client Sample ID: ESL-MW-C1-F(0.2)-1115

Lab Sample ID: 680-118531-9

Date Collected: 11/02/15 16:24
Date Received: 11/03/15 09:29

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409356	11/06/15 14:40	KMN	TAL SAV
Dissolved	Analysis	6010C		1	409694	11/09/15 23:31	BCB	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 02:19	KMB	TAL SAV

Client Sample ID: ESL-MW-C1-1115-EB

Lab Sample ID: 680-118531-10

Date Collected: 11/02/15 17:05
Date Received: 11/03/15 09:29

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409248	11/06/15 15:05	CEJ	TAL SAV

Client Sample ID: 4Q15 LTM Trip Blank #1

Lab Sample ID: 680-118531-11

Date Collected: 11/02/15 00:00
Date Received: 11/03/15 09:29

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409248	11/06/15 12:46	CEJ	TAL SAV

Laboratory References:

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

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lab Sampler~~	Date: 11/2/15	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: 3Q15 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	SVOCs by 8270	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
PMID-1115	11/2/15	1230	G	W	14	N		3		1	1	1	3	2	3			
PMID-F(0.2)-1115		1230			4	Y										1	3	2 coolers
PMID-1115-AD		1230			3	N		3										
PMIN-1115		1350			14	N		3		1	1	1	3	2	3			
PMIM-F(0.2)-1115		1350			4	Y										1	3	
ESL-MW-DI-1115		1520			14	N		3		1	1	1	3	2	3			
ESL-MW-DI-F(0.2)-1115		1520			4	Y										1	3	
ESL-MW-CI-1115		1624			14	N		3		1	1	1	3	2	3	1	3	
ESL-MW-CI-F(0.2)-1115		1624			4	Y										1	[illegible]	
ESL-MW-CI-1115-EB		1705			3	N		3										
3Q15 LTM Trip Blank #1					2	N		2										
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other								2	1	4	1	1	2	1,3	3	4	3	

680-118531 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

680-118531

1.4 1.8

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 7998421565063 | Cooler Temp. (°C): Obs'd: 2.6 Corr'd: 3.0 | Therm ID No.:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder 1130	11/2/15			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company	Date/Time:	Received in Laboratory by: M. Kersey	Company TA	Date/Time: 11/3/15 09:29

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

11/4/15 CWM

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-118531-1
SDG Number: KPS152

Login Number: 118531
List Number: 1
Creator: Kicklighter, Marilyn D

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	

AMD 11/27/15

Certification Summary

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

TestAmerica Job ID: 680-118531-1
SDG: KPS152

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	06-30-16
Arkansas DEQ	State Program	6	88-0692	01-31-16 *
California	State Program	9	2939	07-31-16
Colorado	State Program	8	N/A	12-31-15 *
Connecticut	State Program	1	PH-0161	03-31-17
Florida	NELAP	4	E87052	06-30-16
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	803	06-30-16
Guam	State Program	9	14-004r	04-16-16
Hawaii	State Program	9	N/A	06-30-16
Illinois	NELAP	5	200022	11-30-15 *
Indiana	State Program	5	N/A	06-30-16
Iowa	State Program	7	353	06-30-17
Kentucky (DW)	State Program	4	90084	12-31-15 *
Kentucky (UST)	State Program	4	18	06-30-16
Kentucky (WW)	State Program	4	90084	12-31-15 *
Louisiana	NELAP	6	30690	06-30-16
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	06-30-16
Michigan	State Program	5	9925	03-05-16
Mississippi	State Program	4	N/A	06-30-15 *
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-16
New Jersey	NELAP	2	GA769	10-31-15 *
New Mexico	State Program	6	N/A	06-30-16
New York	NELAP	2	10842	03-31-16
North Carolina (DW)	State Program	4	13701	07-31-16
North Carolina (WW/SW)	State Program	4	269	12-31-15 *
Oklahoma	State Program	6	9984	08-31-16
Pennsylvania	NELAP	3	68-00474	06-30-16
Puerto Rico	State Program	2	GA00006	12-31-15 *
South Carolina	State Program	4	98001	06-30-15 *
Tennessee	State Program	4	TN02961	06-30-16
Texas	NELAP	6	T104704185-14-7	11-30-15 *
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-16
Washington	State Program	10	C805	06-10-16
West Virginia (DW)	State Program	3	9950C	12-31-15 *
West Virginia DEP	State Program	3	094	06-30-16
Wisconsin	State Program	5	999819810	08-31-16
Wyoming	State Program	8	8TMS-L	06-30-16

* Certification renewal pending - certification considered valid.

AWP 11/27/15

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
4Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-4Q15 LTM
Reviewer: A. Derhake
Laboratory: TestAmerica
SDG#: KPS153
Matrix: Water

Project Manager: A. Derhake
Project Number: 140-3345
Sample Date: November 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: ESL-MW-A-1115, ESL-MW-A-F(0.2)-1115, GWE-5D-1115, GWE-5D-F(0.2)-1115, GWE-5M-1115, GWE-5M-F(0.2)-1115, GWE-5S-1115, GWE-5S-F(0.2)-1115, CPA-MW-5D-1115, CPA-MW-5D-F(0.2)-1115, 4Q15 LTM Trip Blank #2

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

Comments:

VOC: Insufficient volume to perform a (MS/MSD) associated with analytical batch 409651. Sample CPA-MW-5D-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 409205.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples ESL-MW-A-1115, GWE-5D-1115, GWE-5M-1115, GWE-5S-1115, and CPA-MW-5D-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Samples ESL-MW-A-1115, GWE-5D-1115, GWE-5M-1115, GWE-5S-1115, and CPA-MW-5D-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: The closing continuing calibration verification standards associated with batch 411484 failed to meet acceptance limits. The method blank for analytical batch 411484 contained DOC above the method detection limit.

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

Comments: Samples were received at 1.6°C and 5.4°C, some outside the 4°C +/- 2°C criteria.

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

Comments: Detections in diluted analysis were qualified.

GC/MS Instrument Performance Check (IPC) and Internal Standards (IS)	YES	NO	NA
a) IPC analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
b) Does BFB 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: None

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

Comments: None

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

Comments: None

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

Comments: None

Duplicates

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

Comments: None.

Additional Comments: None

Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Chlorobenzene, Chloride, and Sulfate	D	CPA-MW-5D, ESL-MW-A, GWE-5D, GWE-5M, and GWE-5S

SDG KPS153

Sample Results from:

ESL-MW-A
GWE-5S
GWE-5M
GWE-5D
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: 680-118606-1
TestAmerica Sample Delivery Group: KPS153
Client Project/Site: 4Q15 LTM GW Sampling - 1403345

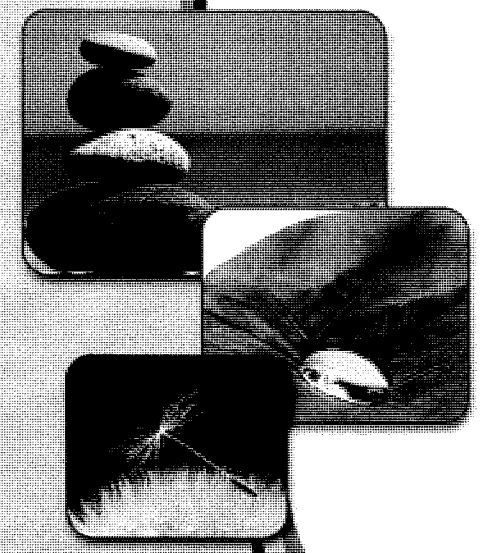
For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, Missouri 63141

Attn: Mr. Jerry Rinaldi

Michele R Kersey

Authorized for release by:
11/23/2015 4:24:28 PM

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



LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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

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

Results relate only to the items tested and the sample(s) as received by the laboratory. AMP 11/27/15

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AWD
11/27/15

Job ID: 680-118606-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 4Q15 LTM GW Sampling - 1403345

Report Number: 680-118606-1

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

RECEIPT
The samples were received on 11/4/2015 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.6° C and 5.4° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples ESL-MW-A-1115 (680-118606-1), GWE-5D-1115 (680-118606-3), GWE-5M-1115 (680-118606-5), GWE-5S-1115 (680-118606-7), CPA-MW-5D-1115 (680-118606-9) and 4Q15 Trip Blank #2 (680-118606-11) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/06/2015 and 11/10/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-409651.

Sample CPA-MW-5D-1115 (680-118606-9)[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.

DISSOLVED GASES
Samples ESL-MW-A-1115 (680-118606-1), GWE-5D-1115 (680-118606-3), GWE-5M-1115 (680-118606-5), GWE-5S-1115 (680-118606-7) and CPA-MW-5D-1115 (680-118606-9) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 11/05/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-409205.

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

METALS (ICP)
Samples ESL-MW-A-F(0.2)-1115 (680-118606-2), GWE-5D-F(0.2)-1115 (680-118606-4), GWE-5M-F(0.2)-1115 (680-118606-6), GWE-5S-F(0.2)-1115 (680-118606-8) and CPA-MW-5D-F(0.2)-1115 (680-118606-10) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/09/2015 and analyzed on 11/10/2015.

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

METALS (ICP)
Samples ESL-MW-A-1115 (680-118606-1), GWE-5D-1115 (680-118606-3), GWE-5M-1115 (680-118606-5), GWE-5S-1115 (680-118606-7) and CPA-MW-5D-1115 (680-118606-9) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/09/2015 and analyzed on 11/10/2015.

AWD 11/27/15

Job ID: 680-118606-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

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

ALKALINITY
Samples ESL-MW-A-1115 (680-118606-1), GWE-5D-1115 (680-118606-3), GWE-5M-1115 (680-118606-5), GWE-5S-1115 (680-118606-7) and CPA-MW-5D-1115 (680-118606-9) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 11/14/2015 and 11/15/2015.

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

CHLORIDE
Samples ESL-MW-A-1115 (680-118606-1), GWE-5D-1115 (680-118606-3), GWE-5M-1115 (680-118606-5), GWE-5S-1115 (680-118606-7) and CPA-MW-5D-1115 (680-118606-9) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 11/09/2015.

Samples ESL-MW-A-1115 (680-118606-1)[2X], GWE-5D-1115 (680-118606-3)[2X], GWE-5M-1115 (680-118606-5)[2X], GWE-5S-1115 (680-118606-7)[2X] and CPA-MW-5D-1115 (680-118606-9)[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 ESL-MW-A-1115 (680-118606-1), GWE-5D-1115 (680-118606-3), GWE-5M-1115 (680-118606-5), GWE-5S-1115 (680-118606-7) and CPA-MW-5D-1115 (680-118606-9) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 11/04/2015.

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

SULFATE
Samples ESL-MW-A-1115 (680-118606-1), GWE-5D-1115 (680-118606-3), GWE-5M-1115 (680-118606-5), GWE-5S-1115 (680-118606-7) and CPA-MW-5D-1115 (680-118606-9) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 11/09/2015.

Samples ESL-MW-A-1115 (680-118606-1)[50X], GWE-5D-1115 (680-118606-3)[20X], GWE-5M-1115 (680-118606-5)[5X], GWE-5S-1115 (680-118606-7)[5X] and CPA-MW-5D-1115 (680-118606-9)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL ORGANIC CARBON
Samples ESL-MW-A-1115 (680-118606-1), GWE-5D-1115 (680-118606-3), GWE-5M-1115 (680-118606-5), GWE-5S-1115 (680-118606-7) and CPA-MW-5D-1115 (680-118606-9) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 11/12/2015 and 11/17/2015.

The closing continuing calibration verification (CCV) standards associated with batch 680-411484 failed to meet acceptance limits. The associated samples were re-analyzed following a successful CCV and produced similar results, indicating that the sample matrix is adversely affecting the instrument and causing the failures. Sample results confirm.

The method blank for analytical batch 680-411484 contained DOC above the method detection limit (MDL). Associated samples were analyzed multiple times with confirming results. Data is being qualified and reported.

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

DISSOLVED ORGANIC CARBON (DOC)
Samples ESL-MW-A-F(0.2)-1115 (680-118606-2), GWE-5D-F(0.2)-1115 (680-118606-4), GWE-5M-F(0.2)-1115 (680-118606-6),

MWD 11/27/15

Job ID: 680-118606-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

GWE-5S-F(0.2)-1115 (680-118606-8) and CPA-MW-5D-F(0.2)-1115 (680-118606-10) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 11/18/2015 and 11/20/2015.

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

AWO 11/27/15

Sample Summary

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-118606-1	ESL-MW-A-1115	Water	11/03/15 09:55	11/04/15 09:15
680-118606-2	ESL-MW-A-F(0.2)-1115	Water	11/03/15 09:55	11/04/15 09:15
680-118606-3	GWE-5D-1115	Water	11/03/15 11:05	11/04/15 09:15
680-118606-4	GWE-5D-F(0.2)-1115	Water	11/03/15 11:05	11/04/15 09:15
680-118606-5	GWE-5M-1115	Water	11/03/15 11:45	11/04/15 09:15
680-118606-6	GWE-5M-F(0.2)-1115	Water	11/03/15 11:45	11/04/15 09:15
680-118606-7	GWE-5S-1115	Water	11/03/15 12:20	11/04/15 09:15
680-118606-8	GWE-5S-F(0.2)-1115	Water	11/03/15 12:20	11/04/15 09:15
680-118606-9	CPA-MW-5D-1115	Water	11/03/15 15:50	11/04/15 09:15
680-118606-10	CPA-MW-5D-F(0.2)-1115	Water	11/03/15 15:50	11/04/15 09:15
680-118606-11	4Q15 Trip Blank #2	Water	11/03/15 00:00	11/04/15 09:15

AWD 11/27/15
TestAmerica Savannah

Method Summary

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

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 SAV
415.1	DOC	MCAWW	TAL SAV

Protocol References:

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

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

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

Laboratory References:

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

AWD 11/27/15
TestAmerica Savannah

Definitions/Glossary

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

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.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC 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)

RWD 11/27/15
TestAmerica Savannah

Detection Summary

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: ESL-MW-A-1115 — Lab Sample ID: 680-118606-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	8.2		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	92	D	2.0		mg/L	2		325.2	Total/NA
Nitrate as N	0.20		0.050		mg/L	1		353.2	Total/NA
Sulfate	810	D	250		mg/L	50		375.4	Total/NA
Total Organic Carbon	3.9		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	380		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	10		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: ESL-MW-A-F(0.2)-1115 — Lab Sample ID: 680-118606-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	14		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.43		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.0		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GWE-5D-1115 — Lab Sample ID: 680-118606-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4.5		1.0		ug/L	1		8260B	Total/NA
Chlorobenzene	140		1.0		ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	3.0		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	16		1.0		ug/L	1		8260B	Total/NA
Methane	81		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	87	D	2.0		mg/L	2		325.2	Total/NA
Sulfate	550	D	100		mg/L	20		375.4	Total/NA
Total Organic Carbon	3.3		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	380		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	10		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-5D-F(0.2)-1115 — Lab Sample ID: 680-118606-4

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	3.2		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GWE-5M-1115 — Lab Sample ID: 680-118606-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	56		0.58		ug/L	1		RSK-175	Total/NA

This Detection Summary does not include radiochemical test results.

MWD 11/27/15
TestAmerica Savannah

Detection Summary

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: GWE-5M-1115 (Continued) — Lab Sample ID: 680-118606-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	25		0.050		mg/L	1		6010C	Total Recoverable
Manganese	1.3		0.010		mg/L	1		6010C	Total Recoverable
Chloride	62	D	2.0		mg/L	2		325.2	Total/NA
Sulfate	170	D	25		mg/L	5		375.4	Total/NA
Total Organic Carbon	3.2		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	520		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	16		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-5M-F(0.2)-1115 — Lab Sample ID: 680-118606-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	23		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	1.3		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.0		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GWE-5S-1115 — Lab Sample ID: 680-118606-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	23		0.58		ug/L	1		RSK-175	Total/NA
Iron	0.63		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.36		0.010		mg/L	1		6010C	Total Recoverable
Chloride	55	D	2.0		mg/L	2		325.2	Total/NA
Nitrate as N	0.77		0.050		mg/L	1		353.2	Total/NA
Sulfate	100	D	25		mg/L	5		375.4	Total/NA
Total Organic Carbon	3.5		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	500		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	16		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-5S-F(0.2)-1115 — Lab Sample ID: 680-118606-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese, Dissolved	0.28		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	8.9	^	1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-5D-1115 — Lab Sample ID: 680-118606-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	1800	D	20		ug/L	20		8260B	Total/NA
Ethane	7.9		1.1		ug/L	1		RSK-175	Total/NA
Methane	220		0.58		ug/L	1		RSK-175	Total/NA
Iron	19		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.68		0.010		mg/L	1		6010C	Total Recoverable
Chloride	190	D	5.0		mg/L	5		325.2	Total/NA

This Detection Summary does not include radiochemical test results.

RWD 11/27/15
TestAmerica Savannah

Detection Summary

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: CPA-MW-5D-1115 (Continued) — Lab Sample ID: 680-118606-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	300	D	50		mg/L	10		375.4	Total/NA
Total Organic Carbon	6.8		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	590		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: CPA-MW-5D-F(0.2)-1115 — Lab Sample ID: 680-118606-10

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	6.0		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: 4Q15 Trip Blank #2 — Lab Sample ID: 680-118606-11

No Detections.

This Detection Summary does not include radiochemical test results.

AMD 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: ESL-MW-A-1115

Date Collected: 11/03/15 09:55
Date Received: 11/04/15 09:15

Lab Sample ID: 680-118606-1

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			11/06/15 16:37	1
Chlorobenzene	1.0	U	1.0		ug/L			11/06/15 16:37	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 16:37	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 16:37	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*11/06/15 16:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*11/06/15 16:37*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*11/06/15 16:37*	*1*
4-Bromofluorobenzene (Surr)	*125*		*70 - 130*		*11/06/15 16:37*	*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			11/05/15 22:03	1
Ethylene	1.0	U	1.0		ug/L			11/05/15 22:03	1
Methane	8.2		0.58		ug/L			11/05/15 22:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	14		0.050		mg/L		11/09/15 11:53	11/10/15 00:29	1
Manganese	0.43		0.010		mg/L		11/09/15 11:53	11/10/15 00:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	92	D	2.0		mg/L			11/09/15 10:19	2
Nitrate as N	0.20		0.050		mg/L			11/04/15 16:59	1
Sulfate	810	D	250		mg/L			11/09/15 14:21	50
Total Organic Carbon	3.9		1.0		mg/L			11/12/15 23:42	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	380		5.0		mg/L			11/14/15 23:48	1
Carbon Dioxide, Free	10		5.0		mg/L			11/14/15 23:48	1

AWD 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: ESL-MW-A-F(0.2)-1115

Date Collected: 11/03/15 09:55
Date Received: 11/04/15 09:15

Lab Sample ID: 680-118606-2

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		11/09/15 11:53	11/10/15 00:34	1
Manganese, Dissolved	0.43		0.010		mg/L		11/09/15 11:53	11/10/15 00:34	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.0		1.0		mg/L			11/18/15 02:34	1

AMD 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: GWE-5D-1115

Date Collected: 11/03/15 11:05
Date Received: 11/04/15 09:15

Lab Sample ID: 680-118606-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	4.5		1.0		ug/L			11/10/15 12:37	1
Chlorobenzene	140		1.0		ug/L			11/10/15 12:37	1
1,2-Dichlorobenzene	3.0		1.0		ug/L			11/10/15 12:37	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/10/15 12:37	1
1,4-Dichlorobenzene	16		1.0		ug/L			11/10/15 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*70 - 130*		*11/10/15 12:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*		*11/10/15 12:37*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*11/10/15 12:37*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*11/10/15 12:37*	*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			11/05/15 22:15	1
Ethylene	1.0	U	1.0		ug/L			11/05/15 22:15	1
Methane	81		0.58		ug/L			11/05/15 22:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	14		0.050		mg/L		11/09/15 11:53	11/10/15 00:00	1
Manganese	0.42		0.010		mg/L		11/09/15 11:53	11/10/15 00:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	87	D	2.0		mg/L			11/09/15 10:19	2
Nitrate as N	0.050	U	0.050		mg/L			11/04/15 17:01	1
Sulfate	550	D	100		mg/L			11/09/15 14:19	20
Total Organic Carbon	3.3		1.0		mg/L			11/12/15 23:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	380		5.0		mg/L			11/14/15 23:57	1
Carbon Dioxide, Free	10		5.0		mg/L			11/14/15 23:57	1

AWO 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: GWE-5D-F(0.2)-1115

Lab Sample ID: 680-118606-4

Date Collected: 11/03/15 11:05
Date Received: 11/04/15 09:15

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		11/09/15 11:53	11/10/15 00:38	1
Manganese, Dissolved	0.42		0.010		mg/L		11/09/15 11:53	11/10/15 00:38	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.2		1.0		mg/L			11/18/15 02:46	1

AWD 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: GWE-5M-1115

Date Collected: 11/03/15 11:45
Date Received: 11/04/15 09:15

Lab Sample ID: 680-118606-5

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			11/06/15 17:00	1
Chlorobenzene	1.0	U	1.0		ug/L			11/06/15 17:00	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 17:00	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 17:00	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 17:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*11/06/15 17:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*11/06/15 17:00*	*1*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*11/06/15 17:00*	*1*
4-Bromofluorobenzene (Surr)	*125*		*70 - 130*		*11/06/15 17:00*	*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			11/05/15 22:28	1
Ethylene	1.0	U	1.0		ug/L			11/05/15 22:28	1
Methane	56		0.58		ug/L			11/05/15 22:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	25		0.050		mg/L		11/09/15 11:53	11/10/15 00:42	1
Manganese	1.3		0.010		mg/L		11/09/15 11:53	11/10/15 00:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	62	D	2.0		mg/L			11/09/15 10:21	2
Nitrate as N	0.050	U	0.050		mg/L			11/04/15 17:02	1
Sulfate	170	D	25		mg/L			11/09/15 11:12	5
Total Organic Carbon	3.2		1.0		mg/L			11/17/15 18:44	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	520		5.0		mg/L			11/15/15 00:08	1
Carbon Dioxide, Free	16		5.0		mg/L			11/15/15 00:08	1

MMD 11/20/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: GWE-5M-F(0.2)-1115

Date Collected: 11/03/15 11:45
Date Received: 11/04/15 09:15

Lab Sample ID: 680-118606-6

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	23		0.050		mg/L		11/09/15 11:53	11/10/15 00:46	1
Manganese, Dissolved	1.3		0.010		mg/L		11/09/15 11:53	11/10/15 00:46	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.0		1.0		mg/L			11/18/15 02:59	1

MMD 11/20/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: GWE-5S-1115

Date Collected: 11/03/15 12:20
Date Received: 11/04/15 09:15

Lab Sample ID: 680-118606-7

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/06/15 17:23	1
Chlorobenzene	1.0	U	1.0		ug/L			11/06/15 17:23	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 17:23	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 17:23	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 17:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*11/06/15 17:23*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*11/06/15 17:23*	*1*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*11/06/15 17:23*	*1*
4-Bromofluorobenzene (Surr)	*125*		*70 - 130*		*11/06/15 17:23*	*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			11/05/15 22:41	1
Ethylene	1.0	U	1.0		ug/L			11/05/15 22:41	1
Methane	23		0.58		ug/L			11/05/15 22:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.63		0.050		mg/L		11/09/15 11:53	11/10/15 00:50	1
Manganese	0.36		0.010		mg/L		11/09/15 11:53	11/10/15 00:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	55	D	2.0		mg/L			11/09/15 10:21	2
Nitrate as N	0.77		0.050		mg/L			11/04/15 17:03	1
Sulfate	100	D	25		mg/L			11/09/15 11:14	5
Total Organic Carbon	3.5		1.0		mg/L			11/17/15 19:00	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	500		5.0		mg/L			11/15/15 00:17	1
Carbon Dioxide, Free	16		5.0		mg/L			11/15/15 00:17	1

AWD 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: GWE-5S-F(0.2)-1115

Date Collected: 11/03/15 12:20
Date Received: 11/04/15 09:15

Lab Sample ID: 680-118606-8

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		11/09/15 11:53	11/10/15 00:54	1
Manganese, Dissolved	0.28		0.010		mg/L		11/09/15 11:53	11/10/15 00:54	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	8.9	^	1.0		mg/L			11/20/15 20:05	1

AWO 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: CPA-MW-5D-1115

Lab Sample ID: 680-118606-9

Date Collected: 11/03/15 15:50
Date Received: 11/04/15 09:15

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			11/06/15 17:46	20
Chlorobenzene	1800	D	20		ug/L			11/06/15 17:46	20
1,2-Dichlorobenzene	20	U	20		ug/L			11/06/15 17:46	20
1,3-Dichlorobenzene	20	U	20		ug/L			11/06/15 17:46	20
1,4-Dichlorobenzene	20	U	20		ug/L			11/06/15 17:46	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*11/06/15 17:46*	*20*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*		*11/06/15 17:46*	*20*
Dibromofluoromethane (Surr)	*110*		*70 - 130*		*11/06/15 17:46*	*20*
4-Bromofluorobenzene (Surr)	*124*		*70 - 130*		*11/06/15 17:46*	*20*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	7.9		1.1		ug/L			11/05/15 22:54	1
Ethylene	1.0	U	1.0		ug/L			11/05/15 22:54	1
Methane	220		0.58		ug/L			11/05/15 22:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	19		0.050		mg/L		11/09/15 11:53	11/10/15 01:07	1
Manganese	0.68		0.010		mg/L		11/09/15 11:53	11/10/15 01:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	190	D	5.0		mg/L			11/09/15 10:28	5
Nitrate as N	0.050	U	0.050		mg/L			11/04/15 17:04	1
Sulfate	300	D	50		mg/L			11/09/15 13:37	10
Total Organic Carbon	6.8		1.0		mg/L			11/17/15 19:22	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	590		5.0		mg/L			11/15/15 00:29	1
Carbon Dioxide, Free	25		5.0		mg/L			11/15/15 00:29	1

AMD 11/27/15

TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: CPA-MW-5D-F(0.2)-1115

Lab Sample ID: 680-118606-10

Date Collected: 11/03/15 15:50
Date Received: 11/04/15 09:15

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		11/09/15 11:53	11/10/15 01:11	1
Manganese, Dissolved	0.68		0.010		mg/L		11/09/15 11:53	11/10/15 01:11	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.0		1.0		mg/L			11/18/15 03:52	1

AWD 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: 4Q15 Trip Blank #2

Lab Sample ID: 680-118606-11

Date Collected: 11/03/15 00:00
Matrix: Water
Date Received: 11/04/15 09:15

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			11/06/15 13:09	1
Chlorobenzene	1.0	U	1.0		ug/L			11/06/15 13:09	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 13:09	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 13:09	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 13:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*11/06/15 13:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*		*11/06/15 13:09*	*1*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*11/06/15 13:09*	*1*
4-Bromofluorobenzene (Surr)	*125*		*70 - 130*		*11/06/15 13:09*	*1*

MWD 11/27/15
TestAmerica Savannah

Surrogate Summary

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

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)**
680-118606-1	ESL-MW-A-1115	100	94	96	125
680-118606-1 MS	ESL-MW-A-1115	100	90	98	120
680-118606-1 MSD	ESL-MW-A-1115	99	88	99	121
680-118606-3	GWE-5D-1115	92	92	96	96
680-118606-5	GWE-5M-1115	100	95	98	125
680-118606-7	GWE-5S-1115	101	95	97	125
680-118606-9	CPA-MW-5D-1115	101	107	110	124
680-118606-11	4Q15 Trip Blank #2	100	92	98	125
LCS 680-409248/4	Lab Control Sample	101	98	104	118
LCS 680-409651/4	Lab Control Sample	91	94	99	94
LCSD 680-409248/5	Lab Control Sample Dup	101	99	106	117
LCSD 680-409651/5	Lab Control Sample Dup	90	95	99	96
MB 680-409248/9	Method Blank	100	95	98	124
MB 680-409651/9	Method Blank	94	89	93	98

Surrogate Legend

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

PWD 11/27/15
TestAmerica Savannah

QC Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

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

Lab Sample ID: MB 680-409248/9
Matrix: Water
Analysis Batch: 409248

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			11/06/15 12:23	1
Chlorobenzene	1.0	U	1.0		ug/L			11/06/15 12:23	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 12:23	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 12:23	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/06/15 12:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*11/06/15 12:23*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*11/06/15 12:23*	*1*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*11/06/15 12:23*	*1*
4-Bromofluorobenzene (Surr)	*124*		*70 - 130*		*11/06/15 12:23*	*1*

Lab Sample ID: LCS 680-409248/4
Matrix: Water
Analysis Batch: 409248

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	48.5		ug/L		97	73 - 131
Chlorobenzene	50.0	51.4		ug/L		103	80 - 120
1,2-Dichlorobenzene	50.0	46.4		ug/L		93	80 - 120
1,3-Dichlorobenzene	50.0	53.4		ug/L		107	80 - 120
1,4-Dichlorobenzene	50.0	49.5		ug/L		99	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*
Dibromofluoromethane (Surr)	*104*		*70 - 130*
4-Bromofluorobenzene (Surr)	*118*		*70 - 130*

Lab Sample ID: LCSD 680-409248/5
Matrix: Water
Analysis Batch: 409248

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	1	30
Chlorobenzene	50.0	52.2		ug/L		104	80 - 120	2	20
1,2-Dichlorobenzene	50.0	47.1		ug/L		94	80 - 120	2	20
1,3-Dichlorobenzene	50.0	54.0		ug/L		108	80 - 120	1	20
1,4-Dichlorobenzene	50.0	50.6		ug/L		101	80 - 120	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*
Dibromofluoromethane (Surr)	*106*		*70 - 130*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*

AWD 11/27/15
TestAmerica Savannah

QC Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

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

Lab Sample ID: 680-118606-1 MS
Matrix: Water
Analysis Batch: 409248

Client Sample ID: ESL-MW-A-1115
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	48.4		ug/L		97	73 - 131
Chlorobenzene	1.0	U	50.0	51.6		ug/L		103	80 - 120
1,2-Dichlorobenzene	1.0	U	50.0	43.5		ug/L		87	80 - 120
1,3-Dichlorobenzene	1.0	U	50.0	52.1		ug/L		104	80 - 120
1,4-Dichlorobenzene	1.0	U	50.0	49.4		ug/L		99	80 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
4-Bromofluorobenzene (Surr)	*120*		*70 - 130*

Lab Sample ID: 680-118606-1 MSD
Matrix: Water
Analysis Batch: 409248

Client Sample ID: ESL-MW-A-1115
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	48.2		ug/L		96	73 - 131	0	30
Chlorobenzene	1.0	U	50.0	52.4		ug/L		105	80 - 120	1	20
1,2-Dichlorobenzene	1.0	U	50.0	46.4		ug/L		93	80 - 120	6	20
1,3-Dichlorobenzene	1.0	U	50.0	53.7		ug/L		107	80 - 120	3	20
1,4-Dichlorobenzene	1.0	U	50.0	51.0		ug/L		102	80 - 120	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 130*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene (Surr)	*121*		*70 - 130*

Lab Sample ID: MB 680-409651/9
Matrix: Water
Analysis Batch: 409651

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			11/10/15 10:26	1
Chlorobenzene	1.0	U	1.0		ug/L			11/10/15 10:26	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/10/15 10:26	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/10/15 10:26	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/10/15 10:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*70 - 130*		*11/10/15 10:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 130*		*11/10/15 10:26*	*1*
Dibromofluoromethane (Surr)	*93*		*70 - 130*		*11/10/15 10:26*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*11/10/15 10:26*	*1*

RWD 11/27/15
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Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-409651/4
Matrix: Water
Analysis Batch: 409651

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	49.7		ug/L		99	73 - 131
Chlorobenzene	50.0	44.2		ug/L		88	80 - 120
1,2-Dichlorobenzene	50.0	44.2		ug/L		88	80 - 120
1,3-Dichlorobenzene	50.0	45.5		ug/L		91	80 - 120
1,4-Dichlorobenzene	50.0	44.1		ug/L		88	80 - 120

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

Lab Sample ID: LCSD 680-409651/5
Matrix: Water
Analysis Batch: 409651

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	50.1		ug/L		100	73 - 131	1	30
Chlorobenzene	50.0	43.0		ug/L		86	80 - 120	3	20
1,2-Dichlorobenzene	50.0	44.9		ug/L		90	80 - 120	1	20
1,3-Dichlorobenzene	50.0	46.4		ug/L		93	80 - 120	2	20
1,4-Dichlorobenzene	50.0	44.9		ug/L		90	80 - 120	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*90*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-409205/9
Matrix: Water
Analysis Batch: 409205

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			11/05/15 19:27	1
Ethylene	1.0	U	1.0		ug/L			11/05/15 19:27	1
Methane	0.58	U	0.58		ug/L			11/05/15 19:27	1

Lab Sample ID: LCS 680-409205/3
Matrix: Water
Analysis Batch: 409205

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	282		ug/L		98	75 - 125
Ethylene	269	263		ug/L		98	75 - 125

MWO 11/27/15

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

Lab Sample ID: LCS 680-409205/3
Matrix: Water
Analysis Batch: 409205

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	154	141		ug/L		92	75 - 125

Lab Sample ID: LCSD 680-409205/4
Matrix: Water
Analysis Batch: 409205

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	272		ug/L		94	75 - 125	4	30
Ethylene	269	252		ug/L		94	75 - 125	5	30
Methane	154	135		ug/L		88	75 - 125	4	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-409540/1-A
Matrix: Water
Analysis Batch: 409694

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 409540

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		11/09/15 11:53	11/09/15 23:52	1
Iron, Dissolved	0.050	U	0.050		mg/L		11/09/15 11:53	11/09/15 23:52	1
Manganese	0.010	U	0.010		mg/L		11/09/15 11:53	11/09/15 23:52	1
Manganese, Dissolved	0.010	U	0.010		mg/L		11/09/15 11:53	11/09/15 23:52	1

Lab Sample ID: LCS 680-409540/2-A
Matrix: Water
Analysis Batch: 409694

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 409540

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.18		mg/L		104	80 - 120
Iron, Dissolved	5.00	5.18		mg/L		104	80 - 120
Manganese	0.500	0.530		mg/L		106	80 - 120
Manganese, Dissolved	0.500	0.530		mg/L		106	80 - 120

Lab Sample ID: 680-118606-3 MS
Matrix: Water
Analysis Batch: 409694

Client Sample ID: GWE-5D-1115
Prep Type: Total Recoverable
Prep Batch: 409540

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	14		5.00	18.9		mg/L		96	75 - 125
Iron, Dissolved	14		5.00	18.9		mg/L		96	75 - 125
Manganese	0.42		0.500	0.947		mg/L		105	75 - 125
Manganese, Dissolved	0.42		0.500	0.947		mg/L		105	75 - 125

Lab Sample ID: 680-118606-3 MSD
Matrix: Water
Analysis Batch: 409694

Client Sample ID: GWE-5D-1115
Prep Type: Total Recoverable
Prep Batch: 409540

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	14		5.00	18.7		mg/L		92	75 - 125	1	20

QC Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

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

Lab Sample ID: 680-118606-3 MSD
Matrix: Water
Analysis Batch: 409694

Client Sample ID: GWE-5D-1115
Prep Type: Total Recoverable
Prep Batch: 409540

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron, Dissolved	14		5.00	18.7		mg/L		92	75 - 125	1	20
Manganese	0.42		0.500	0.937		mg/L		103	75 - 125	1	20
Manganese, Dissolved	0.42		0.500	0.937		mg/L		103	75 - 125	1	20

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-410459/37
Matrix: Water
Analysis Batch: 410459

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			11/14/15 20:59	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/14/15 20:59	1

Lab Sample ID: LCS 680-410459/38
Matrix: Water
Analysis Batch: 410459

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	248	262		mg/L		106	80 - 120

Lab Sample ID: LCSD 680-410459/34
Matrix: Water
Analysis Batch: 410459

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	248	267		mg/L		108	80 - 120	2	30

Lab Sample ID: LCSD 680-410459/65
Matrix: Water
Analysis Batch: 410459

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	248	263		mg/L		106	80 - 120	1	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-409674/34
Matrix: Water
Analysis Batch: 409674

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			11/09/15 10:35	1

AWD 11/27/15
TestAmerica Savannah

Method: 325.2 - Chloride (Continued)

Lab Sample ID: LCS 680-409674/44
Matrix: Water
Analysis Batch: 409674

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.4		mg/L		102	85 - 115

Lab Sample ID: LCSD 680-409674/50
Matrix: Water
Analysis Batch: 409674

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	25.0	25.5		mg/L		102	85 - 115	0	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-409035/13
Matrix: Water
Analysis Batch: 409035

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			11/04/15 16:45	1

Lab Sample ID: LCS 680-409035/16
Matrix: Water
Analysis Batch: 409035

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	0.513		mg/L		103	75 - 125
Nitrate Nitrite as N	1.00	1.02		mg/L		102	90 - 110
Nitrite as N	0.500	0.507		mg/L		101	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-409675/46
Matrix: Water
Analysis Batch: 409675

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			11/09/15 16:13	1

Lab Sample ID: LCS 680-409675/50
Matrix: Water
Analysis Batch: 409675

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	21.0		mg/L		105	75 - 125

Lab Sample ID: LCSD 680-409675/16
Matrix: Water
Analysis Batch: 409675

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	20.7		mg/L		104	75 - 125	2	30

QC Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Method: 415.1 - DOC

Lab Sample ID: MB 680-410972/50
Matrix: Water
Analysis Batch: 410972

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			11/18/15 00:37	1

Lab Sample ID: LCS 680-410972/51
Matrix: Water
Analysis Batch: 410972

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	16.0		mg/L		80	80 - 120

Lab Sample ID: MB 680-411484/21
Matrix: Water
Analysis Batch: 411484

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			11/20/15 16:21	1

Lab Sample ID: LCS 680-411484/22
Matrix: Water
Analysis Batch: 411484

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	23.8	^	mg/L		119	80 - 120

Method: 415.1 - TOC

Lab Sample ID: MB 680-410378/43
Matrix: Water
Analysis Batch: 410378

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			11/12/15 21:34	1

Lab Sample ID: LCS 680-410378/46
Matrix: Water
Analysis Batch: 410378

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.2		mg/L		96	80 - 120

Lab Sample ID: LLCS 680-410378/4
Matrix: Water
Analysis Batch: 410378

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.00	1.44		mg/L		144	50 - 150

QC Sample Results

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Method: 415.1 - TOC (Continued)

Lab Sample ID: MB 680-410971/24
Matrix: Water
Analysis Batch: 410971

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			11/17/15 17:34	1

Lab Sample ID: LCS 680-410971/25
Matrix: Water
Analysis Batch: 410971

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.7		mg/L		99	80 - 120

Lab Sample ID: LLCS 680-410971/5
Matrix: Water
Analysis Batch: 410971

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.00	1.35		mg/L		135	50 - 150

TestAmerica Savannah
AWD 11/27/15

QC Association Summary

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

GC/MS VOA

Analysis Batch: 409248

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-1	ESL-MW-A-1115	Total/NA	Water	8260B	
680-118606-1 MS	ESL-MW-A-1115	Total/NA	Water	8260B	
680-118606-1 MSD	ESL-MW-A-1115	Total/NA	Water	8260B	
680-118606-5	GWE-5M-1115	Total/NA	Water	8260B	
680-118606-7	GWE-5S-1115	Total/NA	Water	8260B	
680-118606-9	CPA-MW-5D-1115	Total/NA	Water	8260B	
680-118606-11	4Q15 Trip Blank #2	Total/NA	Water	8260B	
LCS 680-409248/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-409248/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-409248/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 409651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-3	GWE-5D-1115	Total/NA	Water	8260B	
LCS 680-409651/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-409651/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-409651/9	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 409205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-1	ESL-MW-A-1115	Total/NA	Water	RSK-175	
680-118606-3	GWE-5D-1115	Total/NA	Water	RSK-175	
680-118606-5	GWE-5M-1115	Total/NA	Water	RSK-175	
680-118606-7	GWE-5S-1115	Total/NA	Water	RSK-175	
680-118606-9	CPA-MW-5D-1115	Total/NA	Water	RSK-175	
LCS 680-409205/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-409205/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-409205/9	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 409540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-1	ESL-MW-A-1115	Total Recoverable	Water	3005A	
680-118606-2	ESL-MW-A-F(0.2)-1115	Dissolved	Water	3005A	
680-118606-3	GWE-5D-1115	Total Recoverable	Water	3005A	
680-118606-3 MS	GWE-5D-1115	Total Recoverable	Water	3005A	
680-118606-3 MSD	GWE-5D-1115	Total Recoverable	Water	3005A	
680-118606-4	GWE-5D-F(0.2)-1115	Dissolved	Water	3005A	
680-118606-5	GWE-5M-1115	Total Recoverable	Water	3005A	
680-118606-6	GWE-5M-F(0.2)-1115	Dissolved	Water	3005A	
680-118606-7	GWE-5S-1115	Total Recoverable	Water	3005A	
680-118606-8	GWE-5S-F(0.2)-1115	Dissolved	Water	3005A	
680-118606-9	CPA-MW-5D-1115	Total Recoverable	Water	3005A	
680-118606-10	CPA-MW-5D-F(0.2)-1115	Dissolved	Water	3005A	
LCS 680-409540/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-409540/1-A	Method Blank	Total Recoverable	Water	3005A	

QC Association Summary

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Metals (Continued)

Analysis Batch: 409694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-1	ESL-MW-A-1115	Total Recoverable	Water	6010C	409540
680-118606-2	ESL-MW-A-F(0.2)-1115	Dissolved	Water	6010C	409540
680-118606-3	GWE-5D-1115	Total Recoverable	Water	6010C	409540
680-118606-3 MS	GWE-5D-1115	Total Recoverable	Water	6010C	409540
680-118606-3 MSD	GWE-5D-1115	Total Recoverable	Water	6010C	409540
680-118606-4	GWE-5D-F(0.2)-1115	Dissolved	Water	6010C	409540
680-118606-5	GWE-5M-1115	Total Recoverable	Water	6010C	409540
680-118606-6	GWE-5M-F(0.2)-1115	Dissolved	Water	6010C	409540
680-118606-7	GWE-5S-1115	Total Recoverable	Water	6010C	409540
680-118606-8	GWE-5S-F(0.2)-1115	Dissolved	Water	6010C	409540
680-118606-9	CPA-MW-5D-1115	Total Recoverable	Water	6010C	409540
680-118606-10	CPA-MW-5D-F(0.2)-1115	Dissolved	Water	6010C	409540
LCS 680-409540/2-A	Lab Control Sample	Total Recoverable	Water	6010C	409540
MB 680-409540/1-A	Method Blank	Total Recoverable	Water	6010C	409540

General Chemistry

Analysis Batch: 409035

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-1	ESL-MW-A-1115	Total/NA	Water	353.2	
680-118606-3	GWE-5D-1115	Total/NA	Water	353.2	
680-118606-5	GWE-5M-1115	Total/NA	Water	353.2	
680-118606-7	GWE-5S-1115	Total/NA	Water	353.2	
680-118606-9	CPA-MW-5D-1115	Total/NA	Water	353.2	
LCS 680-409035/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-409035/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 409674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-1	ESL-MW-A-1115	Total/NA	Water	325.2	
680-118606-3	GWE-5D-1115	Total/NA	Water	325.2	
680-118606-5	GWE-5M-1115	Total/NA	Water	325.2	
680-118606-7	GWE-5S-1115	Total/NA	Water	325.2	
680-118606-9	CPA-MW-5D-1115	Total/NA	Water	325.2	
LCS 680-409674/44	Lab Control Sample	Total/NA	Water	325.2	
LCSD 680-409674/50	Lab Control Sample Dup	Total/NA	Water	325.2	
MB 680-409674/34	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 409675

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-1	ESL-MW-A-1115	Total/NA	Water	375.4	
680-118606-3	GWE-5D-1115	Total/NA	Water	375.4	
680-118606-5	GWE-5M-1115	Total/NA	Water	375.4	
680-118606-7	GWE-5S-1115	Total/NA	Water	375.4	
680-118606-9	CPA-MW-5D-1115	Total/NA	Water	375.4	
LCS 680-409675/50	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-409675/16	Lab Control Sample Dup	Total/NA	Water	375.4	
MB 680-409675/46	Method Blank	Total/NA	Water	375.4	

QC Association Summary

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

General Chemistry (Continued)

Analysis Batch: 410378

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-1	ESL-MW-A-1115	Total/NA	Water	415.1	
680-118606-3	GWE-5D-1115	Total/NA	Water	415.1	
LCS 680-410378/46	Lab Control Sample	Total/NA	Water	415.1	
LLCS 680-410378/4	Lab Control Sample	Total/NA	Water	415.1	
MB 680-410378/43	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 410459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-1	ESL-MW-A-1115	Total/NA	Water	310.1	
680-118606-3	GWE-5D-1115	Total/NA	Water	310.1	
680-118606-5	GWE-5M-1115	Total/NA	Water	310.1	
680-118606-7	GWE-5S-1115	Total/NA	Water	310.1	
680-118606-9	CPA-MW-5D-1115	Total/NA	Water	310.1	
LCS 680-410459/38	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-410459/34	Lab Control Sample Dup	Total/NA	Water	310.1	
LCSD 680-410459/65	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-410459/37	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 410971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-5	GWE-5M-1115	Total/NA	Water	415.1	
680-118606-7	GWE-5S-1115	Total/NA	Water	415.1	
680-118606-9	CPA-MW-5D-1115	Total/NA	Water	415.1	
LCS 680-410971/25	Lab Control Sample	Total/NA	Water	415.1	
LLCS 680-410971/5	Lab Control Sample	Total/NA	Water	415.1	
MB 680-410971/24	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 410972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-2	ESL-MW-A-F(0.2)-1115	Dissolved	Water	415.1	
680-118606-4	GWE-5D-F(0.2)-1115	Dissolved	Water	415.1	
680-118606-6	GWE-5M-F(0.2)-1115	Dissolved	Water	415.1	
680-118606-10	CPA-MW-5D-F(0.2)-1115	Dissolved	Water	415.1	
LCS 680-410972/51	Lab Control Sample	Dissolved	Water	415.1	
MB 680-410972/50	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 411484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118606-8	GWE-5S-F(0.2)-1115	Dissolved	Water	415.1	
LCS 680-411484/22	Lab Control Sample	Dissolved	Water	415.1	
MB 680-411484/21	Method Blank	Dissolved	Water	415.1	

Lab Chronicle

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: ESL-MW-A-1115

Lab Sample ID: 680-118606-1
Matrix: Water

Date Collected: 11/03/15 09:55
Date Received: 11/04/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409248	11/06/15 16:37	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409205	11/05/15 22:03	AAH	TAL SAV
Total Recoverable	Prep	3005A			409540	11/09/15 11:53	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	409694	11/10/15 00:29	BCB	TAL SAV
Total/NA	Analysis	310.1		1	410459	11/14/15 23:48	KLD	TAL SAV
Total/NA	Analysis	325.2		2	409674	11/09/15 10:19	JME	TAL SAV
Total/NA	Analysis	353.2		1	409035	11/04/15 16:59	GRX	TAL SAV
Total/NA	Analysis	375.4		50	409675	11/09/15 14:21	JME	TAL SAV
Total/NA	Analysis	415.1		1	410378	11/12/15 23:42	KMB	TAL SAV

Client Sample ID: ESL-MW-A-F(0.2)-1115

Lab Sample ID: 680-118606-2
Matrix: Water

Date Collected: 11/03/15 09:55
Date Received: 11/04/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409540	11/09/15 11:53	CRW	TAL SAV
Dissolved	Analysis	6010C		1	409694	11/10/15 00:34	BCB	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 02:34	KMB	TAL SAV

Client Sample ID: GWE-5D-1115

Lab Sample ID: 680-118606-3
Matrix: Water

Date Collected: 11/03/15 11:05
Date Received: 11/04/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409651	11/10/15 12:37	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409205	11/05/15 22:15	AAH	TAL SAV
Total Recoverable	Prep	3005A			409540	11/09/15 11:53	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	409694	11/10/15 00:00	BCB	TAL SAV
Total/NA	Analysis	310.1		1	410459	11/14/15 23:57	KLD	TAL SAV
Total/NA	Analysis	325.2		2	409674	11/09/15 10:19	JME	TAL SAV
Total/NA	Analysis	353.2		1	409035	11/04/15 17:01	GRX	TAL SAV
Total/NA	Analysis	375.4		20	409675	11/09/15 14:19	JME	TAL SAV
Total/NA	Analysis	415.1		1	410378	11/12/15 23:54	KMB	TAL SAV

Client Sample ID: GWE-5D-F(0.2)-1115

Lab Sample ID: 680-118606-4
Matrix: Water

Date Collected: 11/03/15 11:05
Date Received: 11/04/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409540	11/09/15 11:53	CRW	TAL SAV
Dissolved	Analysis	6010C		1	409694	11/10/15 00:38	BCB	TAL SAV

Lab Chronicle

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: GWE-5D-F(0.2)-1115

Lab Sample ID: 680-118606-4
Matrix: Water

Date Collected: 11/03/15 11:05
Date Received: 11/04/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	410972	11/18/15 02:46	KMB	TAL SAV

Client Sample ID: GWE-5M-1115

Lab Sample ID: 680-118606-5
Matrix: Water

Date Collected: 11/03/15 11:45
Date Received: 11/04/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409248	11/06/15 17:00	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409205	11/05/15 22:28	AAH	TAL SAV
Total Recoverable	Prep	3005A			409540	11/09/15 11:53	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	409694	11/10/15 00:42	BCB	TAL SAV
Total/NA	Analysis	310.1		1	410459	11/15/15 00:08	KLD	TAL SAV
Total/NA	Analysis	325.2		2	409674	11/09/15 10:21	JME	TAL SAV
Total/NA	Analysis	353.2		1	409035	11/04/15 17:02	GRX	TAL SAV
Total/NA	Analysis	375.4		5	409675	11/09/15 11:12	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 18:44	KMB	TAL SAV

Client Sample ID: GWE-5M-F(0.2)-1115

Lab Sample ID: 680-118606-6
Matrix: Water

Date Collected: 11/03/15 11:45
Date Received: 11/04/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409540	11/09/15 11:53	CRW	TAL SAV
Dissolved	Analysis	6010C		1	409694	11/10/15 00:46	BCB	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 02:59	KMB	TAL SAV

Client Sample ID: GWE-5S-1115

Lab Sample ID: 680-118606-7
Matrix: Water

Date Collected: 11/03/15 12:20
Date Received: 11/04/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409248	11/06/15 17:23	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409205	11/05/15 22:41	AAH	TAL SAV
Total Recoverable	Prep	3005A			409540	11/09/15 11:53	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	409694	11/10/15 00:50	BCB	TAL SAV
Total/NA	Analysis	310.1		1	410459	11/15/15 00:17	KLD	TAL SAV
Total/NA	Analysis	325.2		2	409674	11/09/15 10:21	JME	TAL SAV
Total/NA	Analysis	353.2		1	409035	11/04/15 17:03	GRX	TAL SAV
Total/NA	Analysis	375.4		5	409675	11/09/15 11:14	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 19:00	KMB	TAL SAV

Lab Chronicle

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

Client Sample ID: GWE-5S-F(0.2)-1115

Lab Sample ID: 680-118606-8
Date Collected: 11/03/15 12:20
Matrix: Water
Date Received: 11/04/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409540	11/09/15 11:53	CRW	TAL SAV
Dissolved	Analysis	6010C		1	409694	11/10/15 00:54	BCB	TAL SAV
Dissolved	Analysis	415.1		1	411484	11/20/15 20:05	RSW	TAL SAV

Client Sample ID: CPA-MW-5D-1115

Lab Sample ID: 680-118606-9
Date Collected: 11/03/15 15:50
Matrix: Water
Date Received: 11/04/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	409248	11/06/15 17:46	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409205	11/05/15 22:54	AAH	TAL SAV
Total Recoverable	Prep	3005A			409540	11/09/15 11:53	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	409694	11/10/15 01:07	BCB	TAL SAV
Total/NA	Analysis	310.1		1	410459	11/15/15 00:29	KLD	TAL SAV
Total/NA	Analysis	325.2		5	409674	11/09/15 10:28	JME	TAL SAV
Total/NA	Analysis	353.2		1	409035	11/04/15 17:04	GRX	TAL SAV
Total/NA	Analysis	375.4		10	409675	11/09/15 13:37	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 19:22	KMB	TAL SAV

Client Sample ID: CPA-MW-5D-F(0.2)-1115

Lab Sample ID: 680-118606-10
Date Collected: 11/03/15 15:50
Matrix: Water
Date Received: 11/04/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409540	11/09/15 11:53	CRW	TAL SAV
Dissolved	Analysis	6010C		1	409694	11/10/15 01:11	BCB	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 03:52	KMB	TAL SAV

Client Sample ID: 4Q15 Trip Blank #2

Lab Sample ID: 680-118606-11
Date Collected: 11/03/15 00:00
Matrix: Water
Date Received: 11/04/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409248	11/06/15 13:09	CEJ	TAL SAV

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

TestAmerica Savannah
KMD 11/27/15

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: Amanda Derhake

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Bindner~~	Date: 11/3/15	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: E. White
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: 2015 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	SVOCs by 8270	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 376.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
ESL-MW-A-1115	11/3/15	0955	G	W	14	N		3		1	1	1	3	2	3			2 coolers
ESL-MW-A-1115-MS		0955			3	N		3										
ESL-MW-A-1115-MSD		0955			3	N		3										
ESL-MW-A-F(0.2)-1115		0955			4	Y										1	3	
GWE-SD-1115		1105			14	N		3		1	1	1	3	2	3			
GWE-SD-F(0.2)-1115		1105			4	Y										1	3	
GWE-SM-1115		1145			14	N		3		1	1	1	3	2	3			
GWE-SM-F(0.2)-1115		1145			4	Y										1	3	
GWE-SS-1115		1220			14	N		3		1	1	1	3	2	3			
GWE-SS-F(0.2)-1115		1220			4	Y										1	3	
CPA-MW-5D-1115		1550			14	N		3		1	1	1	3	2	3			
CPA-MW-5D-F(0.2)-1115		1550			4	Y										1	3	
Preservative Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other								1	4	1	1	2	1,3	3	3	1	3	

680-118606 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

5.0/5.4 1.2/1.4

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 799867/799868 | Cooler Temp. (°C): Obs'd: _____ Corr'd. _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder	11/3/15 1515	[signature]	TA	11/9/15 9:18
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Bingler~~	Date: 11/3/15	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: E. White
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: 4Q15 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	SVOCs by 8270	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
4Q15 Trip Blank #2	—	—	—	—	2	N		2										2 coolers

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

680-186066 SO/5.4 1.2/1.0

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 799847 / 799848	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____
Relinquished by: Emily White	Company: Golder	Date/Time: 11/3/15 1915	Received by: [signature] Company: TA Date/Time: 11/4/15 9:15
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

11/4/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-118606-1
SDG Number: KPS153

Login Number: 118606
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?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	

MWD 11/27/15

Certification Summary

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

TestAmerica Job ID: 680-118606-1
SDG: KPS153

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	06-30-16
Arkansas DEQ	State Program	6	88-0692	01-31-16 *
California	State Program	9	2939	07-31-16
Colorado	State Program	8	N/A	12-31-15 *
Connecticut	State Program	1	PH-0161	03-31-17
Florida	NELAP	4	E87052	06-30-16
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	803	06-30-16
Guam	State Program	9	14-004r	04-16-16
Hawaii	State Program	9	N/A	06-30-16
Illinois	NELAP	5	200022	11-30-15 *
Indiana	State Program	5	N/A	06-30-16
Iowa	State Program	7	353	06-30-17
Kentucky (DW)	State Program	4	90084	12-31-15 *
Kentucky (UST)	State Program	4	18	06-30-16
Kentucky (WW)	State Program	4	90084	12-31-15 *
Louisiana	NELAP	6	30690	06-30-16
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	06-30-16
Michigan	State Program	5	9925	03-05-16
Mississippi	State Program	4	N/A	06-30-15 *
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-16
New Jersey	NELAP	2	GA769	10-31-15 *
New Mexico	State Program	6	N/A	06-30-16
New York	NELAP	2	10842	03-31-16
North Carolina (DW)	State Program	4	13701	07-31-16
North Carolina (WW/SW)	State Program	4	269	12-31-15 *
Oklahoma	State Program	6	9984	08-31-16
Pennsylvania	NELAP	3	68-00474	06-30-16
Puerto Rico	State Program	2	GA00006	12-31-15 *
South Carolina	State Program	4	98001	06-30-15 *
Tennessee	State Program	4	TN02961	06-30-16
Texas	NELAP	6	T104704185-14-7	11-30-15 *
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-16
Washington	State Program	10	C805	06-10-16
West Virginia (DW)	State Program	3	9950C	12-31-15 *
West Virginia DEP	State Program	3	094	06-30-16
Wisconsin	State Program	5	999819810	08-31-16
Wyoming	State Program	8	8TMS-L	06-30-16

* Certification renewal pending - certification considered valid.

TestAmerica Savannah

AWD 11/27/15

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
4Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-4Q15 LTM
Reviewer: A. Derhake
Laboratory: TestAmerica
SDG#: KPS154
Matrix: Water

Project Manager: A. Derhake
Project Number: 140-3345
Sample Date: November 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-1115, BSA-MW-5D-F(0.2)-1115, CPA-MW-4D-1115, CPA-MW-4D-F(0.2)-1115, BSA-MW-4D-1115, BSA-MW-4D-F(0.2)-1115, BSA-MW-3D-1115, BSA-MW-3D-F(0.2)-1115, BSA-MW-3D-1115-EB, 4Q15 LTM Trip Blank #3

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

Comments:

VOC: Insufficient sample volume to perform MS/MSD for analytical batches 410142 and 410005. MS/MSD recoveries for analytical batch 410223 were outside control limits (sample matrix interference and/or non-homogeneity are suspected). Samples BSA-MW-5D-1115, CPA-MW-4D-1115, BSA-MW-4D-1115, and BSA-MW-3D-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

Dissolved Gases: No deficiencies noted.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples BSA-MW-5D-1115, CPA-MW-4D-1115, BSA-MW-4D-1115, and BSA-MW-3D-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Sulfate exceeded the RPD limit for the duplicate of sample BSA-MW-4d-1115DU. Samples BSA-MW-4D-1115 and BSA-MW-3D-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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

Comments: Samples were received at 3.2°C and 3.4°C, within the 4°C +/- 2°C criteria.

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

Comments: Detections in diluted analysis were qualified.

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

Comments: None

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

Comments: 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 for BSA-MW-3 were submitted with SDG KPS154. Chlorobenzene was detected in the EB, qualification was not required due to 5x dilution rule.

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

Comments: Chlorobenzene had low recovery on MSD sample associated with batch 410223. Data was not qualified on MS/MSD data alone.

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

Comments: None

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

Comments: None

Duplicates

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

Comments: Lab duplicates did not meet precision criteria for alkalinity in BSA-MW-5D, or for chloride and sulfate in BSA-MW-4D. No qualification required.

Additional Comments: None

Qualifications:

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

SDG KPS154

Sample Results from:

CPA-MW-4D
BSA-MW-3D
BSA-MW-4D
BSA-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: 680-118652-1
TestAmerica Sample Delivery Group: KPS154
Client Project/Site: 4Q15 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:
11/20/2015 4:19:50 PM

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

LINKS

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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.

MP 11/27/15

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AMP 11/27/15

Job ID: 680-118652-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 4Q15 LTM GW Sampling - 1403345

Report Number: 680-118652-1

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

RECEIPT
The samples were received on 11/5/2015 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.2° C and 3.4° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples BSA-MW-5D-1115 (680-118652-1), CPA-MW-4D-1115 (680-118652-3), BSA-MW-4D-1115 (680-118652-5), BSA-MW-3D-1115 (680-118652-7), BSA-MW-3D-1115-EB (680-118652-9) and 4Q15 LTM Trip Blank #3 (680-118652-10) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/11/2015 and 11/12/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-410142.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-410005.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 680-410223 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Samples BSA-MW-5D-1115 (680-118652-1)[2X], CPA-MW-4D-1115 (680-118652-3)[2X], BSA-MW-4D-1115 (680-118652-5)[20X] and BSA-MW-3D-1115 (680-118652-7)[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.

DISSOLVED GASES
Samples BSA-MW-5D-1115 (680-118652-1), CPA-MW-4D-1115 (680-118652-3), BSA-MW-4D-1115 (680-118652-5) and BSA-MW-3D-1115 (680-118652-7) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 11/06/2015.

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

METALS (ICP)
Samples BSA-MW-5D-F(0.2)-1115 (680-118652-2), CPA-MW-4D-F(0.2)-1115 (680-118652-4), BSA-MW-4D-F(0.2)-1115 (680-118652-6) and BSA-MW-3D-F(0.2)-1115 (680-118652-8) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/11/2015 and analyzed on 11/12/2015.

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

Job ID: 680-118652-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

METALS (ICP)
Samples BSA-MW-5D-1115 (680-118652-1), CPA-MW-4D-1115 (680-118652-3), BSA-MW-4D-1115 (680-118652-5) and BSA-MW-3D-1115 (680-118652-7) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/11/2015 and analyzed on 11/12/2015.

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

ALKALINITY
Samples BSA-MW-5D-1115 (680-118652-1), CPA-MW-4D-1115 (680-118652-3), BSA-MW-4D-1115 (680-118652-5) and BSA-MW-3D-1115 (680-118652-7) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 11/15/2015 and 11/16/2015.

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

CHLORIDE
Samples BSA-MW-5D-1115 (680-118652-1), CPA-MW-4D-1115 (680-118652-3), BSA-MW-4D-1115 (680-118652-5) and BSA-MW-3D-1115 (680-118652-7) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 11/09/2015.

Samples BSA-MW-5D-1115 (680-118652-1)[5X], CPA-MW-4D-1115 (680-118652-3)[10X], BSA-MW-4D-1115 (680-118652-5)[2X] and BSA-MW-3D-1115 (680-118652-7)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

NITRATE-NITRITE AS NITROGEN
Samples BSA-MW-5D-1115 (680-118652-1), CPA-MW-4D-1115 (680-118652-3), BSA-MW-4D-1115 (680-118652-5) and BSA-MW-3D-1115 (680-118652-7) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 11/05/2015.

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

SULFATE
Samples BSA-MW-5D-1115 (680-118652-1), CPA-MW-4D-1115 (680-118652-3), BSA-MW-4D-1115 (680-118652-5) and BSA-MW-3D-1115 (680-118652-7) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 11/09/2015.

Sulfate exceeded the RPD limit for the duplicate of sample BSA-MW-4D-1115DU (680-118652-5). Refer to the QC report for details.

Samples BSA-MW-4D-1115 (680-118652-5)[10X] and BSA-MW-3D-1115 (680-118652-7)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL ORGANIC CARBON
Samples BSA-MW-5D-1115 (680-118652-1), CPA-MW-4D-1115 (680-118652-3), BSA-MW-4D-1115 (680-118652-5) and BSA-MW-3D-1115 (680-118652-7) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 11/17/2015.

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

DISSOLVED ORGANIC CARBON (DOC)
Samples BSA-MW-5D-F(0.2)-1115 (680-118652-2), CPA-MW-4D-F(0.2)-1115 (680-118652-4), BSA-MW-4D-F(0.2)-1115 (680-118652-6) and BSA-MW-3D-F(0.2)-1115 (680-118652-8) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 11/18/2015.

MW 12/27/15

Job ID: 680-118652-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

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: 4Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-118652-1	BSA-MW-5D-1115	Water	11/04/15 09:38	11/05/15 09:00
680-118652-2	BSA-MW-5D-F(0.2)-1115	Water	11/04/15 09:38	11/05/15 09:00
680-118652-3	CPA-MW-4D-1115	Water	11/04/15 10:44	11/05/15 09:00
680-118652-4	CPA-MW-4D-F(0.2)-1115	Water	11/04/15 10:44	11/05/15 09:00
680-118652-5	BSA-MW-4D-1115	Water	11/04/15 11:47	11/05/15 09:00
680-118652-6	BSA-MW-4D-F(0.2)-1115	Water	11/04/15 11:47	11/05/15 09:00
680-118652-7	BSA-MW-3D-1115	Water	11/04/15 15:15	11/05/15 09:00
680-118652-8	BSA-MW-3D-F(0.2)-1115	Water	11/04/15 15:15	11/05/15 09:00
680-118652-9	BSA-MW-3D-1115-EB	Water	11/04/15 16:05	11/05/15 09:00
680-118652-10	4Q15 LTM Trip Blank #3	Water	11/04/15 00:00	11/05/15 09:00

Method Summary

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

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 SAV
415.1	DOC	MCAWW	TAL SAV

Protocol References:

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

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

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

Laboratory References:

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

Definitions/Glossary

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
F1	MS and/or MSD Recovery is outside acceptance limits.

GC VOA

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

Metals

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

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.

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)

TestAmerica Savannah
11/27/15

Detection Summary

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: BSA-MW-5D-1115 — Lab Sample ID: 680-118652-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	43	D	2.0		ug/L	2		8260B	Total/NA
Chlorobenzene	180	D	2.0		ug/L	2		8260B	Total/NA
Ethane	32		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	17000		390		ug/L	1		RSK-175	Total/NA
Iron	10		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.24		0.010		mg/L	1		6010C	Total Recoverable
Chloride	190	D	5.0		mg/L	5		325.2	Total/NA
Total Organic Carbon	9.9		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	690		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	22		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-5D-F(0.2)-1115 — Lab Sample ID: 680-118652-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	10		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.23		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	8.5		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-4D-1115 — Lab Sample ID: 680-118652-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	170	D	2.0		ug/L	2		8260B	Total/NA
1,4-Dichlorobenzene	2.0	D	2.0		ug/L	2		8260B	Total/NA
Ethane	40		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	24000		390		ug/L	1		RSK-175	Total/NA
Iron	16		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.41		0.010		mg/L	1		6010C	Total Recoverable
Chloride	270	D	10		mg/L	10		325.2	Total/NA
Total Organic Carbon	8.8		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	700		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-4D-F(0.2)-1115 — Lab Sample ID: 680-118652-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	16		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.41		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	9.2		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: BSA-MW-4D-1115 — Lab Sample ID: 680-118652-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	20	D	20		ug/L	20		8260B	Total/NA
Chlorobenzene	2000	D	20		ug/L	20		8260B	Total/NA
1,4-Dichlorobenzene	67	D	20		ug/L	20		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah
AWD 11/27/15

Detection Summary

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: BSA-MW-4D-1115 (Continued) — Lab Sample ID: 680-118652-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethane	5.7		1.1		ug/L	1		RSK-175	Total/NA
Methane	270		0.58		ug/L	1		RSK-175	Total/NA
Iron	7.5		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.57		0.010		mg/L	1		6010C	Total Recoverable
Chloride	94	D	2.0		mg/L	2		325.2	Total/NA
Sulfate	120	D	50		mg/L	10		375.4	Total/NA
Total Organic Carbon	5.4		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	18		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-4D-F(0.2)-1115 — Lab Sample ID: 680-118652-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	7.4		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.57		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	6.3		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: BSA-MW-3D-1115 — Lab Sample ID: 680-118652-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	55	D	20		ug/L	20		8260B	Total/NA
Chlorobenzene	750	D	20		ug/L	20		8260B	Total/NA
1,4-Dichlorobenzene	190	D	20		ug/L	20		8260B	Total/NA
Ethane	2.1		1.1		ug/L	1		RSK-175	Total/NA
Ethylene	2.0		1.0		ug/L	1		RSK-175	Total/NA
Methane (TCD)	490		390		ug/L	1		RSK-175	Total/NA
Iron	13		0.050		mg/L	1		6010C	Total Recoverable
Manganese	1.3		0.010		mg/L	1		6010C	Total Recoverable
Chloride	140	D	5.0		mg/L	5		325.2	Total/NA
Sulfate	170	D	50		mg/L	10		375.4	Total/NA
Total Organic Carbon	4.1		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	640		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	24		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-3D-F(0.2)-1115 — Lab Sample ID: 680-118652-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	13		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	1.3		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.3		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: BSA-MW-3D-1115-EB — Lab Sample ID: 680-118652-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	1.5		1.0		ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah
AWO 11/27/15

Detection Summary

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: 4Q15 LTM Trip Blank #3 — Lab Sample ID: 680-118652-10

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah
MWD 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: BSA-MW-5D-1115

Date Collected: 11/04/15 09:38
Date Received: 11/05/15 09:00

Lab Sample ID: 680-118652-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	43	D	2.0		ug/L			11/12/15 13:14	2
Chlorobenzene	180	D	2.0		ug/L			11/12/15 13:14	2
1,2-Dichlorobenzene	2.0	U	2.0		ug/L			11/12/15 13:14	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			11/12/15 13:14	2
1,4-Dichlorobenzene	2.0	U	2.0		ug/L			11/12/15 13:14	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*86*		*70 - 130*		*11/12/15 13:14*	*2*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 130*		*11/12/15 13:14*	*2*
Dibromofluoromethane (Surr)	*113*		*70 - 130*		*11/12/15 13:14*	*2*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*11/12/15 13:14*	*2*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	32		1.1		ug/L			11/06/15 16:42	1
Ethylene	1.0	U	1.0		ug/L			11/06/15 16:42	1
Methane (TCD)	17000		390		ug/L			11/06/15 16:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	10		0.050		mg/L		11/11/15 08:12	11/12/15 13:30	1
Manganese	0.24		0.010		mg/L		11/11/15 08:12	11/12/15 13:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	190	D	5.0		mg/L			11/09/15 10:28	5
Nitrate as N	0.050	U	0.050		mg/L			11/05/15 12:16	1
Sulfate	5.0	U	5.0		mg/L			11/09/15 09:50	1
Total Organic Carbon	9.9		1.0		mg/L			11/17/15 19:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	690		5.0		mg/L			11/15/15 18:41	1
Carbon Dioxide, Free	22		5.0		mg/L			11/15/15 18:41	1

MW 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: BSA-MW-5D-F(0.2)-1115

Date Collected: 11/04/15 09:38
Date Received: 11/05/15 09:00

Lab Sample ID: 680-118652-2

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	10		0.050		mg/L		11/11/15 08:12	11/12/15 13:34	1
Manganese, Dissolved	0.23		0.010		mg/L		11/11/15 08:12	11/12/15 13:34	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	8.5		1.0		mg/L			11/18/15 04:05	1

AWD 11/27/15

TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

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

Lab Sample ID: 680-118652-3

Date Collected: 11/04/15 10:44
Date Received: 11/05/15 09:00

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			11/12/15 13:36	2
Chlorobenzene	**170**	P	2.0		ug/L			11/12/15 13:36	2
1,2-Dichlorobenzene	2.0	U	2.0		ug/L			11/12/15 13:36	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			11/12/15 13:36	2
1,4-Dichlorobenzene	**2.0**	P	2.0		ug/L			11/12/15 13:36	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*86*		*70 - 130*		*11/12/15 13:36*	*2*
1,2-Dichloroethane-d4 (Surr)	*119*		*70 - 130*		*11/12/15 13:36*	*2*
Dibromofluoromethane (Surr)	*114*		*70 - 130*		*11/12/15 13:36*	*2*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*11/12/15 13:36*	*2*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	**40**		1.1		ug/L			11/06/15 16:55	1
Ethylene	1.0	U	1.0		ug/L			11/06/15 16:55	1
Methane (TCD)	**24000**		390		ug/L			11/06/15 16:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**16**		0.050		mg/L		11/11/15 08:12	11/12/15 13:38	1
Manganese	**0.41**		0.010		mg/L		11/11/15 08:12	11/12/15 13:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**270**	D	10		mg/L			11/09/15 11:05	10
Nitrate as N	0.050	U	0.050		mg/L			11/05/15 12:17	1
Sulfate	5.0	U	5.0		mg/L			11/09/15 09:50	1
Total Organic Carbon	**8.8**		1.0		mg/L			11/17/15 19:50	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**700**		5.0		mg/L			11/15/15 19:09	1
Carbon Dioxide, Free	**27**		5.0		mg/L			11/15/15 19:09	1

AW 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: CPA-MW-4D-F(0.2)-1115

Lab Sample ID: 680-118652-4

Date Collected: 11/04/15 10:44
Date Received: 11/05/15 09:00

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		11/11/15 08:12	11/12/15 13:42	1
Manganese, Dissolved	0.41		0.010		mg/L		11/11/15 08:12	11/12/15 13:42	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	9.2		1.0		mg/L			11/18/15 04:18	1

11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

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

Lab Sample ID: 680-118652-5

Date Collected: 11/04/15 11:47
Date Received: 11/05/15 09:00

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	20	D	20		ug/L			11/11/15 17:20	20
Chlorobenzene	2000	D	20		ug/L			11/11/15 17:20	20
1,2-Dichlorobenzene	20	U	20		ug/L			11/11/15 17:20	20
1,3-Dichlorobenzene	20	U	20		ug/L			11/11/15 17:20	20
1,4-Dichlorobenzene	67	D	20		ug/L			11/11/15 17:20	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*11/11/15 17:20*	*20*
1,2-Dichloroethane-d4 (Surr)	*125*		*70 - 130*		*11/11/15 17:20*	*20*
Dibromofluoromethane (Surr)	*112*		*70 - 130*		*11/11/15 17:20*	*20*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*11/11/15 17:20*	*20*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	5.7		1.1		ug/L			11/06/15 17:08	1
Ethylene	1.0	U	1.0		ug/L			11/06/15 17:08	1
Methane	270		0.58		ug/L			11/06/15 17:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	7.5		0.050		mg/L		11/11/15 08:12	11/12/15 12:30	1
Manganese	0.57		0.010		mg/L		11/11/15 08:12	11/12/15 12:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	94	D	2.0		mg/L			11/09/15 10:17	2
Nitrate as N	0.050	U	0.050		mg/L			11/05/15 12:18	1
Sulfate	120	D	50		mg/L			11/09/15 16:12	10
Total Organic Carbon	5.4		1.0		mg/L			11/17/15 20:03	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	560		5.0		mg/L			11/15/15 19:19	1
Carbon Dioxide, Free	18		5.0		mg/L			11/15/15 19:19	1

RWO 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: BSA-MW-4D-F(0.2)-1115

Lab Sample ID: 680-118652-6

Date Collected: 11/04/15 11:47
Matrix: Water
Date Received: 11/05/15 09:00

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	7.4		0.050		mg/L		11/11/15 08:12	11/12/15 13:49	1
Manganese, Dissolved	0.57		0.010		mg/L		11/11/15 08:12	11/12/15 13:49	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.3		1.0		mg/L			11/18/15 04:31	1

hw 01/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: BSA-MW-3D-1115

Date Collected: 11/04/15 15:15
Date Received: 11/05/15 09:00

Lab Sample ID: 680-118652-7
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	55	B	20		ug/L			11/11/15 17:41	20
Chlorobenzene	750	D	20		ug/L			11/11/15 17:41	20
1,2-Dichlorobenzene	20	U	20		ug/L			11/11/15 17:41	20
1,3-Dichlorobenzene	20	U	20		ug/L			11/11/15 17:41	20
1,4-Dichlorobenzene	190	D	20		ug/L			11/11/15 17:41	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*70 - 130*		*11/11/15 17:41*	*20*
1,2-Dichloroethane-d4 (Surr)	*127*		*70 - 130*		*11/11/15 17:41*	*20*
Dibromofluoromethane (Surr)	*115*		*70 - 130*		*11/11/15 17:41*	*20*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*11/11/15 17:41*	*20*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	2.1		1.1		ug/L			11/06/15 17:21	1
Ethylene	2.0		1.0		ug/L			11/06/15 17:21	1
Methane (TCD)	490		390		ug/L			11/06/15 17:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	13		0.050		mg/L		11/11/15 08:12	11/12/15 13:53	1
Manganese	1.3		0.010		mg/L		11/11/15 08:12	11/12/15 13:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	140	D	5.0		mg/L			11/09/15 10:26	5
Nitrate as N	0.050	U	0.050		mg/L			11/05/15 12:19	1
Sulfate	170	D	50		mg/L			11/09/15 13:37	10
Total Organic Carbon	4.1		1.0		mg/L			11/17/15 20:18	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	640		5.0		mg/L			11/16/15 04:43	1
Carbon Dioxide, Free	24		5.0		mg/L			11/16/15 04:43	1

MWD 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: BSA-MW-3D-F(0.2)-1115

Lab Sample ID: 680-118652-8

Date Collected: 11/04/15 15:15
Date Received: 11/05/15 09:00

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	13		0.050		mg/L		11/11/15 08:12	11/12/15 13:57	1
Manganese, Dissolved	1.3		0.010		mg/L		11/11/15 08:12	11/12/15 13:57	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.3		1.0		mg/L			11/18/15 04:43	1

AWD 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: BSA-MW-3D-1115-EB

Lab Sample ID: 680-118652-9

Date Collected: 11/04/15 16:05
Date Received: 11/05/15 09:00

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			11/11/15 12:12	1
Chlorobenzene	**1.5**		1.0		ug/L			11/11/15 12:12	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/11/15 12:12	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/11/15 12:12	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/11/15 12:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*11/11/15 12:12*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*		*11/11/15 12:12*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*11/11/15 12:12*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*11/11/15 12:12*	*1*

AW 11/27/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: 4Q15 LTM Trip Blank #3

Lab Sample ID: 680-118652-10

Date Collected: 11/04/15 00:00
Date Received: 11/05/15 09:00

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			11/12/15 17:31	1
Chlorobenzene	1.0	U	1.0		ug/L			11/12/15 17:31	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/12/15 17:31	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/12/15 17:31	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/12/15 17:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*70 - 130*		*11/12/15 17:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 130*		*11/12/15 17:31*	*1*
Dibromofluoromethane (Surr)	*111*		*70 - 130*		*11/12/15 17:31*	*1*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*		*11/12/15 17:31*	*1*

MWD 11/27/15
TestAmerica Savannah

Surrogate Summary

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

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)
680-118652-1	BSA-MW-5D-1115	86	114	113	94
680-118652-1 MS	BSA-MW-5D-1115	105	109	104	99
680-118652-1 MSD	BSA-MW-5D-1115	94	84	91	99
680-118652-3	CPA-MW-4D-1115	86	119	114	94
680-118652-5	BSA-MW-4D-1115	101	125	112	99
680-118652-7	BSA-MW-3D-1115	104	127	115	99
680-118652-9	BSA-MW-3D-1115-EB	101	107	104	99
680-118652-10	4Q15 LTM Trip Blank #3	108	112	111	113
LCS 680-409832/4	Lab Control Sample	102	103	101	94
LCS 680-410005/4	Lab Control Sample	97	94	98	95
LCS 680-410142/3	Lab Control Sample	103	109	105	110
LCS 680-410223/4	Lab Control Sample	92	98	102	99
LCSD 680-409832/5	Lab Control Sample Dup	105	105	103	99
LCSD 680-410005/5	Lab Control Sample Dup	98	93	96	93
LCSD 680-410142/4	Lab Control Sample Dup	102	106	103	108
LCSD 680-410223/5	Lab Control Sample Dup	91	95	100	99
MB 680-409832/9	Method Blank	98	103	101	98
MB 680-410005/9	Method Blank	104	98	104	100
MB 680-410142/8	Method Blank	107	112	110	116
MB 680-410223/9	Method Blank	102	94	101	106

Surrogate Legend

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

MW 11/27/15
TestAmerica Savannah

QC Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

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

Lab Sample ID: MB 680-409832/9
Matrix: Water
Analysis Batch: 409832

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			11/11/15 10:49	1
Chlorobenzene	1.0	U	1.0		ug/L			11/11/15 10:49	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/11/15 10:49	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/11/15 10:49	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/11/15 10:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*11/11/15 10:49*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*11/11/15 10:49*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*11/11/15 10:49*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*11/11/15 10:49*	*1*

Lab Sample ID: LCS 680-409832/4
Matrix: Water
Analysis Batch: 409832

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	50.2		ug/L		100	73 - 131
Chlorobenzene	50.0	47.8		ug/L		96	80 - 120
1,2-Dichlorobenzene	50.0	48.7		ug/L		97	80 - 120
1,3-Dichlorobenzene	50.0	49.2		ug/L		98	80 - 120
1,4-Dichlorobenzene	50.0	48.5		ug/L		97	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*
Dibromofluoromethane (Surr)	*101*		*70 - 130*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*

Lab Sample ID: LCSD 680-409832/5
Matrix: Water
Analysis Batch: 409832

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	51.6		ug/L		103	73 - 131	3	30
Chlorobenzene	50.0	49.2		ug/L		98	80 - 120	3	20
1,2-Dichlorobenzene	50.0	51.1		ug/L		102	80 - 120	5	20
1,3-Dichlorobenzene	50.0	51.4		ug/L		103	80 - 120	4	20
1,4-Dichlorobenzene	50.0	50.4		ug/L		101	80 - 120	4	20

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

PMD 11/27/15
TestAmerica Savannah

QC Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

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

Lab Sample ID: 680-118652-1 MS
Matrix: Water
Analysis Batch: 409832

Client Sample ID: BSA-MW-5D-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	40		100	135		ug/L		95	73 - 131
Chlorobenzene	190		100	253		ug/L		59	80 - 120
1,2-Dichlorobenzene	2.0	U	100	102		ug/L		102	80 - 120
1,3-Dichlorobenzene	2.0	U	100	104		ug/L		104	80 - 120
1,4-Dichlorobenzene	2.0	U	100	102		ug/L		102	80 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 130*
Dibromofluoromethane (Surr)	*104*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: MB 680-410005/9
Matrix: Water
Analysis Batch: 410005

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			11/12/15 10:25	1
Chlorobenzene	1.0	U	1.0		ug/L			11/12/15 10:25	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/12/15 10:25	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/12/15 10:25	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/12/15 10:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*70 - 130*		*11/12/15 10:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*11/12/15 10:25*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*11/12/15 10:25*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*11/12/15 10:25*	*1*

Lab Sample ID: LCS 680-410005/4
Matrix: Water
Analysis Batch: 410005

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	46.6		ug/L		93	73 - 131
Chlorobenzene	50.0	49.2		ug/L		98	80 - 120
1,2-Dichlorobenzene	50.0	49.3		ug/L		99	80 - 120
1,3-Dichlorobenzene	50.0	49.2		ug/L		98	80 - 120
1,4-Dichlorobenzene	50.0	48.6		ug/L		97	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*

MVO 11/27/15
TestAmerica Savannah

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

Lab Sample ID: LCSD 680-410005/5
Matrix: Water
Analysis Batch: 410005

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	46.5		ug/L		93	73 - 131	0	30
Chlorobenzene	50.0	48.8		ug/L		98	80 - 120	1	20
1,2-Dichlorobenzene	50.0	48.1		ug/L		96	80 - 120	2	20
1,3-Dichlorobenzene	50.0	48.5		ug/L		97	80 - 120	1	20
1,4-Dichlorobenzene	50.0	47.6		ug/L		95	80 - 120	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*
Dibromofluoromethane (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: MB 680-410142/8
Matrix: Water
Analysis Batch: 410142

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			11/12/15 17:11	1
Chlorobenzene	1.0	U	1.0		ug/L			11/12/15 17:11	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/12/15 17:11	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/12/15 17:11	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/12/15 17:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*107*		*70 - 130*		*11/12/15 17:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 130*		*11/12/15 17:11*	*1*
Dibromofluoromethane (Surr)	*110*		*70 - 130*		*11/12/15 17:11*	*1*
4-Bromofluorobenzene (Surr)	*116*		*70 - 130*		*11/12/15 17:11*	*1*

Lab Sample ID: LCS 680-410142/3
Matrix: Water
Analysis Batch: 410142

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	51.3		ug/L		103	73 - 131
Chlorobenzene	50.0	49.3		ug/L		99	80 - 120
1,2-Dichlorobenzene	50.0	49.1		ug/L		98	80 - 120
1,3-Dichlorobenzene	50.0	50.8		ug/L		102	80 - 120
1,4-Dichlorobenzene	50.0	49.3		ug/L		99	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 130*
Dibromofluoromethane (Surr)	*105*		*70 - 130*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*

AW 11/27/15

QC Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

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

Lab Sample ID: LCSD 680-410142/4
Matrix: Water
Analysis Batch: 410142

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	51.4		ug/L		103	73 - 131	0	30
Chlorobenzene	50.0	49.0		ug/L		98	80 - 120	0	20
1,2-Dichlorobenzene	50.0	49.0		ug/L		98	80 - 120	0	20
1,3-Dichlorobenzene	50.0	50.9		ug/L		102	80 - 120	0	20
1,4-Dichlorobenzene	50.0	49.9		ug/L		100	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*
Dibromofluoromethane (Surr)	*103*		*70 - 130*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*

Lab Sample ID: MB 680-410223/9
Matrix: Water
Analysis Batch: 410223

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			11/13/15 11:23	1
Chlorobenzene	1.0	U	1.0		ug/L			11/13/15 11:23	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/13/15 11:23	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/13/15 11:23	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/13/15 11:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*70 - 130*		*11/13/15 11:23*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*11/13/15 11:23*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*11/13/15 11:23*	*1*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*		*11/13/15 11:23*	*1*

Lab Sample ID: LCS 680-410223/4
Matrix: Water
Analysis Batch: 410223

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	50.1		ug/L		100	73 - 131
Chlorobenzene	50.0	45.5		ug/L		91	80 - 120
1,2-Dichlorobenzene	50.0	48.0		ug/L		96	80 - 120
1,3-Dichlorobenzene	50.0	47.7		ug/L		95	80 - 120
1,4-Dichlorobenzene	50.0	47.5		ug/L		95	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*92*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*
Dibromofluoromethane (Surr)	*102*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

PMW 11/27/15
TestAmerica Savannah

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

Lab Sample ID: LCSD 680-410223/5
Matrix: Water
Analysis Batch: 410223

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	49.0		ug/L		98	73 - 131	2	30
Chlorobenzene	50.0	44.7		ug/L		89	80 - 120	2	20
1,2-Dichlorobenzene	50.0	48.2		ug/L		96	80 - 120	0	20
1,3-Dichlorobenzene	50.0	48.2		ug/L		96	80 - 120	1	20
1,4-Dichlorobenzene	50.0	47.3		ug/L		95	80 - 120	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*91*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*
Dibromofluoromethane (Surr)	*100*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: 680-118652-1 MSD
Matrix: Water
Analysis Batch: 410223

Client Sample ID: BSA-MW-5D-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	43		100	129		ug/L		87	73 - 131	4	30
Chlorobenzene	180		100	228	F1	ug/L		45	80 - 120	10	20
1,2-Dichlorobenzene	2.0	U	100	89.5		ug/L		89	80 - 120	13	20
1,3-Dichlorobenzene	2.0	U	100	92.9		ug/L		93	80 - 120	11	20
1,4-Dichlorobenzene	2.0	U	100	90.5		ug/L		89	80 - 120	12	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*94*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*84*		*70 - 130*
Dibromofluoromethane (Surr)	*91*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-409278/9
Matrix: Water
Analysis Batch: 409278

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			11/06/15 13:28	1
Ethylene	1.0	U	1.0		ug/L			11/06/15 13:28	1
Methane	0.58	U	0.58		ug/L			11/06/15 13:28	1
Methane (TCD)	390	U	390		ug/L			11/06/15 13:28	1

Lab Sample ID: LCS 680-409278/3
Matrix: Water
Analysis Batch: 409278

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	244		ug/L		85	75 - 125

AMD 11/27/15

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

Lab Sample ID: LCS 680-409278/3
Matrix: Water
Analysis Batch: 409278

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene	269	228		ug/L		85	75 - 125
Methane	154	122		ug/L		79	75 - 125

Lab Sample ID: LCS 680-409278/6
Matrix: Water
Analysis Batch: 409278

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	1710		ug/L		89	75 - 125

Lab Sample ID: LCSD 680-409278/4
Matrix: Water
Analysis Batch: 409278

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	296		ug/L		103	75 - 125	19	30
Ethylene	269	275		ug/L		102	75 - 125	18	30
Methane	154	147		ug/L		96	75 - 125	19	30

Lab Sample ID: LCSD 680-409278/7
Matrix: Water
Analysis Batch: 409278

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	1690		ug/L		88	75 - 125	1	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-409844/1-A
Matrix: Water
Analysis Batch: 410236

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 409844

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		11/11/15 08:12	11/12/15 12:23	1
Iron, Dissolved	0.050	U	0.050		mg/L		11/11/15 08:12	11/12/15 12:23	1
Manganese	0.010	U	0.010		mg/L		11/11/15 08:12	11/12/15 12:23	1
Manganese, Dissolved	0.010	U	0.010		mg/L		11/11/15 08:12	11/12/15 12:23	1

Lab Sample ID: LCS 680-409844/2-A
Matrix: Water
Analysis Batch: 410236

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 409844

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.14		mg/L		103	80 - 120
Iron, Dissolved	5.00	5.14		mg/L		103	80 - 120
Manganese	0.500	0.524		mg/L		105	80 - 120
Manganese, Dissolved	0.500	0.524		mg/L		105	80 - 120

BMD 11/27/15

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QC Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

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

Lab Sample ID: 680-118652-5 MS
Matrix: Water
Analysis Batch: 410236

Client Sample ID: BSA-MW-4D-1115
Prep Type: Total Recoverable
Prep Batch: 409844

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	7.5		5.00	12.2		mg/L		93	75 - 125
Manganese	0.57		0.500	1.07		mg/L		98	75 - 125

Lab Sample ID: 680-118652-5 MSD
Matrix: Water
Analysis Batch: 410236

Client Sample ID: BSA-MW-4D-1115
Prep Type: Total Recoverable
Prep Batch: 409844

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	7.5		5.00	12.3		mg/L		95	75 - 125	1	20
Manganese	0.57		0.500	1.07		mg/L		100	75 - 125	1	20

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-410514/7
Matrix: Water
Analysis Batch: 410514

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			11/15/15 16:28	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/15/15 16:28	1

Lab Sample ID: LCS 680-410514/8
Matrix: Water
Analysis Batch: 410514

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	248	256		mg/L		103	80 - 120

Lab Sample ID: LCSD 680-410514/34
Matrix: Water
Analysis Batch: 410514

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	248	262		mg/L		105	80 - 120	2	30

Lab Sample ID: 680-118652-1 DU
Matrix: Water
Analysis Batch: 410514

Client Sample ID: BSA-MW-5D-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	690		686		mg/L		0.4	30
Carbon Dioxide, Free	22		19.9		mg/L		8	30

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QC Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Method: 325.2 - Chloride

Lab Sample ID: MB 680-409674/34
Matrix: Water
Analysis Batch: 409674

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			11/09/15 10:35	1

Lab Sample ID: LCS 680-409674/44
Matrix: Water
Analysis Batch: 409674

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.4		mg/L		102	85 - 115

Lab Sample ID: LCSD 680-409674/50
Matrix: Water
Analysis Batch: 409674

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	25.0	25.5		mg/L		102	85 - 115	0	30

Lab Sample ID: 680-118652-5 DU
Matrix: Water
Analysis Batch: 409674

Client Sample ID: BSA-MW-4D-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	94		91.8		mg/L		3	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-409141/13
Matrix: Water
Analysis Batch: 409141

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			11/05/15 11:33	1

Lab Sample ID: LCS 680-409141/16
Matrix: Water
Analysis Batch: 409141

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	0.509		mg/L		102	75 - 125
Nitrate Nitrite as N	1.00	1.01		mg/L		101	90 - 110
Nitrite as N	0.500	0.501		mg/L		100	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-409675/46
Matrix: Water
Analysis Batch: 409675

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			11/09/15 16:13	1

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Method: 375.4 - Sulfate (Continued)

Lab Sample ID: LCS 680-409675/50
Matrix: Water
Analysis Batch: 409675

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	21.0		mg/L		105	75 - 125

Lab Sample ID: LCSD 680-409675/16
Matrix: Water
Analysis Batch: 409675

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	20.7		mg/L		104	75 - 125	2	30

Lab Sample ID: 680-118652-5 DU
Matrix: Water
Analysis Batch: 409675

Client Sample ID: BSA-MW-4D-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	120		172	F5	mg/L		32	30

Method: 415.1 - DOC

Lab Sample ID: MB 680-410972/50
Matrix: Water
Analysis Batch: 410972

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			11/18/15 00:37	1

Lab Sample ID: LCS 680-410972/51
Matrix: Water
Analysis Batch: 410972

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	16.0		mg/L		80	80 - 120

Method: 415.1 - TOC

Lab Sample ID: MB 680-410971/24
Matrix: Water
Analysis Batch: 410971

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			11/17/15 17:34	1

Lab Sample ID: LCS 680-410971/25
Matrix: Water
Analysis Batch: 410971

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.7		mg/L		99	80 - 120

MWO 11/27/15

QC Sample Results

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Method: 415.1 - TOC (Continued)

Lab Sample ID: LLCS 680-410971/5
Matrix: Water
Analysis Batch: 410971

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.00	1.35		mg/L		135	50 - 150

MMD 11/27/15
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QC Association Summary

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

GC/MS VOA

Analysis Batch: 409832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-1 MS	BSA-MW-5D-1115	Total/NA	Water	8260B	
680-118652-5	BSA-MW-4D-1115	Total/NA	Water	8260B	
680-118652-7	BSA-MW-3D-1115	Total/NA	Water	8260B	
680-118652-9	BSA-MW-3D-1115-EB	Total/NA	Water	8260B	
LCS 680-409832/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-409832/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-409832/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 410005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-1	BSA-MW-5D-1115	Total/NA	Water	8260B	
680-118652-3	CPA-MW-4D-1115	Total/NA	Water	8260B	
LCS 680-410005/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-410005/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-410005/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 410142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-10	4Q15 LTM Trip Blank #3	Total/NA	Water	8260B	
LCS 680-410142/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-410142/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-410142/8	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 410223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-1 MSD	BSA-MW-5D-1115	Total/NA	Water	8260B	
LCS 680-410223/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-410223/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-410223/9	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 409278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-1	BSA-MW-5D-1115	Total/NA	Water	RSK-175	
680-118652-3	CPA-MW-4D-1115	Total/NA	Water	RSK-175	
680-118652-5	BSA-MW-4D-1115	Total/NA	Water	RSK-175	
680-118652-7	BSA-MW-3D-1115	Total/NA	Water	RSK-175	
LCS 680-409278/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-409278/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-409278/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-409278/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-409278/9	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 409844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-1	BSA-MW-5D-1115	Total Recoverable	Water	3005A	
680-118652-2	BSA-MW-5D-F(0.2)-1115	Dissolved	Water	3005A	

TestAmerica Savannah
MMD 11/27/15

QC Association Summary

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Metals (Continued)

Prep Batch: 409844 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-3	CPA-MW-4D-1115	Total Recoverable	Water	3005A	
680-118652-4	CPA-MW-4D-F(0.2)-1115	Dissolved	Water	3005A	
680-118652-5	BSA-MW-4D-1115	Total Recoverable	Water	3005A	
680-118652-5 MS	BSA-MW-4D-1115	Total Recoverable	Water	3005A	
680-118652-5 MSD	BSA-MW-4D-1115	Total Recoverable	Water	3005A	
680-118652-6	BSA-MW-4D-F(0.2)-1115	Dissolved	Water	3005A	
680-118652-7	BSA-MW-3D-1115	Total Recoverable	Water	3005A	
680-118652-8	BSA-MW-3D-F(0.2)-1115	Dissolved	Water	3005A	
LCS 680-409844/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-409844/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 410236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-1	BSA-MW-5D-1115	Total Recoverable	Water	6010C	409844
680-118652-2	BSA-MW-5D-F(0.2)-1115	Dissolved	Water	6010C	409844
680-118652-3	CPA-MW-4D-1115	Total Recoverable	Water	6010C	409844
680-118652-4	CPA-MW-4D-F(0.2)-1115	Dissolved	Water	6010C	409844
680-118652-5	BSA-MW-4D-1115	Total Recoverable	Water	6010C	409844
680-118652-5 MS	BSA-MW-4D-1115	Total Recoverable	Water	6010C	409844
680-118652-5 MSD	BSA-MW-4D-1115	Total Recoverable	Water	6010C	409844
680-118652-6	BSA-MW-4D-F(0.2)-1115	Dissolved	Water	6010C	409844
680-118652-7	BSA-MW-3D-1115	Total Recoverable	Water	6010C	409844
680-118652-8	BSA-MW-3D-F(0.2)-1115	Dissolved	Water	6010C	409844
LCS 680-409844/2-A	Lab Control Sample	Total Recoverable	Water	6010C	409844
MB 680-409844/1-A	Method Blank	Total Recoverable	Water	6010C	409844

General Chemistry

Analysis Batch: 409141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-1	BSA-MW-5D-1115	Total/NA	Water	353.2	
680-118652-3	CPA-MW-4D-1115	Total/NA	Water	353.2	
680-118652-5	BSA-MW-4D-1115	Total/NA	Water	353.2	
680-118652-7	BSA-MW-3D-1115	Total/NA	Water	353.2	
LCS 680-409141/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-409141/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 409674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-1	BSA-MW-5D-1115	Total/NA	Water	325.2	
680-118652-3	CPA-MW-4D-1115	Total/NA	Water	325.2	
680-118652-5	BSA-MW-4D-1115	Total/NA	Water	325.2	
680-118652-5 DU	BSA-MW-4D-1115	Total/NA	Water	325.2	
680-118652-7	BSA-MW-3D-1115	Total/NA	Water	325.2	
LCS 680-409674/44	Lab Control Sample	Total/NA	Water	325.2	
LCSD 680-409674/50	Lab Control Sample Dup	Total/NA	Water	325.2	
MB 680-409674/34	Method Blank	Total/NA	Water	325.2	

TestAmerica Savannah

QC Association Summary

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

General Chemistry (Continued)

Analysis Batch: 409675

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-1	BSA-MW-5D-1115	Total/NA	Water	375.4	
680-118652-3	CPA-MW-4D-1115	Total/NA	Water	375.4	
680-118652-5	BSA-MW-4D-1115	Total/NA	Water	375.4	
680-118652-5 DU	BSA-MW-4D-1115	Total/NA	Water	375.4	
680-118652-7	BSA-MW-3D-1115	Total/NA	Water	375.4	
LCS 680-409675/50	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-409675/16	Lab Control Sample Dup	Total/NA	Water	375.4	
MB 680-409675/46	Method Blank	Total/NA	Water	375.4	

Analysis Batch: 410514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-1	BSA-MW-5D-1115	Total/NA	Water	310.1	
680-118652-1 DU	BSA-MW-5D-1115	Total/NA	Water	310.1	
680-118652-3	CPA-MW-4D-1115	Total/NA	Water	310.1	
680-118652-5	BSA-MW-4D-1115	Total/NA	Water	310.1	
680-118652-7	BSA-MW-3D-1115	Total/NA	Water	310.1	
LCS 680-410514/8	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-410514/34	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-410514/7	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 410971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-1	BSA-MW-5D-1115	Total/NA	Water	415.1	
680-118652-3	CPA-MW-4D-1115	Total/NA	Water	415.1	
680-118652-5	BSA-MW-4D-1115	Total/NA	Water	415.1	
680-118652-7	BSA-MW-3D-1115	Total/NA	Water	415.1	
LCS 680-410971/25	Lab Control Sample	Total/NA	Water	415.1	
LLCS 680-410971/5	Lab Control Sample	Total/NA	Water	415.1	
MB 680-410971/24	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 410972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118652-2	BSA-MW-5D-F(0.2)-1115	Dissolved	Water	415.1	
680-118652-4	CPA-MW-4D-F(0.2)-1115	Dissolved	Water	415.1	
680-118652-6	BSA-MW-4D-F(0.2)-1115	Dissolved	Water	415.1	
680-118652-8	BSA-MW-3D-F(0.2)-1115	Dissolved	Water	415.1	
LCS 680-410972/51	Lab Control Sample	Dissolved	Water	415.1	
MB 680-410972/50	Method Blank	Dissolved	Water	415.1	

AWP 11/27/15
TestAmerica Savannah

Lab Chronicle

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: BSA-MW-5D-1115
Date Collected: 11/04/15 09:38
Date Received: 11/05/15 09:00

Lab Sample ID: 680-118652-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	410005	11/12/15 13:14	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409278	11/06/15 16:42	AAH	TAL SAV
Total Recoverable	Prep	3005A			409844	11/11/15 08:12	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	410236	11/12/15 13:30	BWR	TAL SAV
Total/NA	Analysis	310.1		1	410514	11/15/15 18:41	DAM	TAL SAV
Total/NA	Analysis	325.2		5	409674	11/09/15 10:28	JME	TAL SAV
Total/NA	Analysis	353.2		1	409141	11/05/15 12:16	GRX	TAL SAV
Total/NA	Analysis	375.4		1	409675	11/09/15 09:50	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 19:35	KMB	TAL SAV

Client Sample ID: BSA-MW-5D-F(0.2)-1115
Date Collected: 11/04/15 09:38
Date Received: 11/05/15 09:00

Lab Sample ID: 680-118652-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409844	11/11/15 08:12	CRW	TAL SAV
Dissolved	Analysis	6010C		1	410236	11/12/15 13:34	BWR	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 04:05	KMB	TAL SAV

Client Sample ID: CPA-MW-4D-1115
Date Collected: 11/04/15 10:44
Date Received: 11/05/15 09:00

Lab Sample ID: 680-118652-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	410005	11/12/15 13:36	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409278	11/06/15 16:55	AAH	TAL SAV
Total Recoverable	Prep	3005A			409844	11/11/15 08:12	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	410236	11/12/15 13:38	BWR	TAL SAV
Total/NA	Analysis	310.1		1	410514	11/15/15 19:09	DAM	TAL SAV
Total/NA	Analysis	325.2		10	409674	11/09/15 11:05	JME	TAL SAV
Total/NA	Analysis	353.2		1	409141	11/05/15 12:17	GRX	TAL SAV
Total/NA	Analysis	375.4		1	409675	11/09/15 09:50	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 19:50	KMB	TAL SAV

Client Sample ID: CPA-MW-4D-F(0.2)-1115
Date Collected: 11/04/15 10:44
Date Received: 11/05/15 09:00

Lab Sample ID: 680-118652-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409844	11/11/15 08:12	CRW	TAL SAV
Dissolved	Analysis	6010C		1	410236	11/12/15 13:42	BWR	TAL SAV

11/27/15
TestAmerica Savannah

Lab Chronicle

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: CPA-MW-4D-F(0.2)-1115

Lab Sample ID: 680-118652-4
Date Collected: 11/04/15 10:44
Matrix: Water
Date Received: 11/05/15 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	410972	11/18/15 04:18	KMB	TAL SAV

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

Lab Sample ID: 680-118652-5
Date Collected: 11/04/15 11:47
Matrix: Water
Date Received: 11/05/15 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	409832	11/11/15 17:20	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409278	11/06/15 17:08	AAH	TAL SAV
Total Recoverable	Prep	3005A			409844	11/11/15 08:12	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	410236	11/12/15 12:30	BWR	TAL SAV
Total/NA	Analysis	310.1		1	410514	11/15/15 19:19	DAM	TAL SAV
Total/NA	Analysis	325.2		2	409674	11/09/15 10:17	JME	TAL SAV
Total/NA	Analysis	353.2		1	409141	11/05/15 12:18	GRX	TAL SAV
Total/NA	Analysis	375.4		10	409675	11/09/15 16:12	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 20:03	KMB	TAL SAV

Client Sample ID: BSA-MW-4D-F(0.2)-1115

Lab Sample ID: 680-118652-6
Date Collected: 11/04/15 11:47
Matrix: Water
Date Received: 11/05/15 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409844	11/11/15 08:12	CRW	TAL SAV
Dissolved	Analysis	6010C		1	410236	11/12/15 13:49	BWR	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 04:31	KMB	TAL SAV

Client Sample ID: BSA-MW-3D-1115

Lab Sample ID: 680-118652-7
Date Collected: 11/04/15 15:15
Matrix: Water
Date Received: 11/05/15 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	409832	11/11/15 17:41	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	409278	11/06/15 17:21	AAH	TAL SAV
Total Recoverable	Prep	3005A			409844	11/11/15 08:12	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	410236	11/12/15 13:53	BWR	TAL SAV
Total/NA	Analysis	310.1		1	410514	11/16/15 04:43	DAM	TAL SAV
Total/NA	Analysis	325.2		5	409674	11/09/15 10:26	JME	TAL SAV
Total/NA	Analysis	353.2		1	409141	11/05/15 12:19	GRX	TAL SAV
Total/NA	Analysis	375.4		10	409675	11/09/15 13:37	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 20:18	KMB	TAL SAV

RMD 11/27/15
TestAmerica Savannah

Lab Chronicle

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

Client Sample ID: BSA-MW-3D-F(0.2)-1115

Lab Sample ID: 680-118652-8
Matrix: Water

Date Collected: 11/04/15 15:15
Date Received: 11/05/15 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409844	11/11/15 08:12	CRW	TAL SAV
Dissolved	Analysis	6010C		1	410236	11/12/15 13:57	BWR	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 04:43	KMB	TAL SAV

Client Sample ID: BSA-MW-3D-1115-EB

Lab Sample ID: 680-118652-9
Matrix: Water

Date Collected: 11/04/15 16:05
Date Received: 11/05/15 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409832	11/11/15 12:12	CEJ	TAL SAV

Client Sample ID: 4Q15 LTM Trip Blank #3

Lab Sample ID: 680-118652-10
Matrix: Water

Date Collected: 11/04/15 00:00
Date Received: 11/05/15 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	410142	11/12/15 17:31	CEJ	TAL SAV

Laboratory References:

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

AWD 11/27/15
TestAmerica Savannah

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Bindner~~	Date: 11/4/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler: E. White
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 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-1115	11/4/15	0938	G	W	14	N		3	1	1	1	3	2	3			2 coolers
BSA-MW-5D-F(0.2)-1115		0938			4	Y									1	3	
BSA-MW-5D-1115-MS		0938			3	N		3									
BSA-MW-5D-1115-MSD		0938			3	N		3									
CPA-MW-4D-1115		1044			14	N		3	1	1	1	3	2	3			
CPA-MW-4D-F(0.2)-1115		1044			4	Y									1	3	
BSA-MW-4D-1115		1147			14	N		3	1	1	1	3	2	3			
BSA-MW-4D-F(0.2)-1115		1147			4	Y									1	3	
BSA-MW-3D-1115		1515			14	N		3	1	1	1	3	2	3			
BSA-MW-3D-F(0.2)-1115		1515			4	Y									1	3	
BSA-MW-3D-1115-EB		1605			3	N		3									
4Q15 LTM Trip Blank #3					3	N		3									

680-118652 Chain of Custody

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

							2			1	2	1	3		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

680-118652 3.0/2.8(CF)3.4/3.2

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 799805 / 799806	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____			
Relinquished by: Emily White	Company: Golder	Date/Time: 11/4/15 1100	Received by:	Company: TA Sav.	Date/Time: 11-05-15 0900
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-118652-1
SDG Number: KPS154

Login Number: 118652
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	

MMD 11/27/15

Certification Summary

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

TestAmerica Job ID: 680-118652-1
SDG: KPS154

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	06-30-16
Arkansas DEQ	State Program	6	88-0692	01-31-16 *
California	State Program	9	2939	07-31-16
Colorado	State Program	8	N/A	12-31-15 *
Connecticut	State Program	1	PH-0161	03-31-17
Florida	NELAP	4	E87052	06-30-16
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	803	06-30-16
Guam	State Program	9	14-004r	04-16-16
Hawaii	State Program	9	N/A	06-30-16
Illinois	NELAP	5	200022	11-30-15 *
Indiana	State Program	5	N/A	06-30-16
Iowa	State Program	7	353	06-30-17
Kentucky (DW)	State Program	4	90084	12-31-15 *
Kentucky (UST)	State Program	4	18	06-30-16
Kentucky (WW)	State Program	4	90084	12-31-15 *
Louisiana	NELAP	6	30690	06-30-16
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	06-30-16
Michigan	State Program	5	9925	03-05-16
Mississippi	State Program	4	N/A	06-30-15 *
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-16
New Jersey	NELAP	2	GA769	10-31-15 *
New Mexico	State Program	6	N/A	06-30-16
New York	NELAP	2	10842	03-31-16
North Carolina (DW)	State Program	4	13701	07-31-16
North Carolina (WW/SW)	State Program	4	269	12-31-15 *
Oklahoma	State Program	6	9984	08-31-16
Pennsylvania	NELAP	3	68-00474	06-30-16
Puerto Rico	State Program	2	GA00006	12-31-15 *
South Carolina	State Program	4	98001	06-30-15 *
Tennessee	State Program	4	TN02961	06-30-16
Texas	NELAP	6	T104704185-14-7	11-30-15 *
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-16
Washington	State Program	10	C805	06-10-16
West Virginia (DW)	State Program	3	9950C	12-31-15 *
West Virginia DEP	State Program	3	094	06-30-16
Wisconsin	State Program	5	999819810	08-31-16
Wyoming	State Program	8	8TMS-L	06-30-16

* Certification renewal pending - certification considered valid.

TestAmerica Savannah
MWD 11/27/15

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
4Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-4Q15 LTM
Reviewer: A. Derhake
Laboratory: TestAmerica
SDG#: KPS155
Matrix: Water

Project Manager: A. Derhake
Project Number: 140-3345
Sample Date: November 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-3D-1115, GWE-3D-F(0.2)-1115, CPA-MW-3D-1115, CPA-MW-3D-F(0.2)-1115, CPA-MW-3D-1115-AD, BSA-MW-2D-1115, BSA-MW-2D-F(0.2)-1115, CPA-MW-1D-1115, CPA-MW-1D-F(0.2)-1115, 4Q15 LTM Trip Blank #4

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

Comments:

VOC: Insufficient sample volume to perform MS/MSD for analytical batches 409836 and 410005. Samples GWE-3D-1115, CPA-MW-3D-1115-AD, BSA-MW-2D-1115, and CPA-MW-1D-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

Dissolved Gases: Insufficient sample volume was available to perform MS/MSD for analytical batch 410176.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Chloride failed the recovery criteria low for the MS and MSD of sample BSA-MW-2D-1115 in batch 410962. Samples GWE-3D-1115, CPA-MW-3D-1115, BSA-MW-2D-1115, and CPA-MW-1D-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: The MS/MSD recoveries for analytical batch 410965 were outside control limits, sample matrix interference suspected because the associated LCS recovery was within acceptance limits. Samples GWE-3D-1115 and BSA-MW-2D required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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

Comments: Samples were received at 5.4°C, within the 4°C +/- 2°C criteria.

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

Comments: None

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: None

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

Comments: Chloride had low recovery on MS/MSD sample associated with batch 410962. No sulfate recovery for MS/MSD associated with batch 410965. Data was not qualified on MS/MSD data alone.

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

Comments: None

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

Comments: None

Duplicates

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

Comments: Duplicate sample CPA-MW-3D was submitted with SDG KPS155.

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	GWE-3D, CPA-MW-3D , CPA-MW-3D-AD, BSA-MW-2D, CPA-MW-1D

SDG KPS155

Sample Results from:

GWE-3D
CPA-MW-3D
CPA-MW-1D
BSA-MW-2D

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 680-118729-1
TestAmerica Sample Delivery Group: KPS155
Client Project/Site: 4Q15 LTM GW Sampling - 1403345

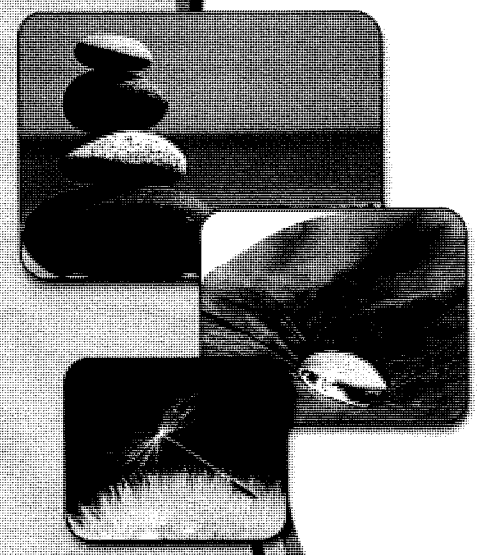
For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, Missouri 63141

Attn: Mr. Jerry Rinaldi

Michele R Kersey

Authorized for release by:
11/20/2015 4:27:16 PM

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



LINKS

Review your project results through TotalAccess

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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.

AND 11/27/15

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mvp 11/27/15

Job ID: 680-118729-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 4Q15 LTM GW Sampling - 1403345

Report Number: 680-118729-1

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

RECEIPT
The samples were received on 11/6/2015 9:54 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.4° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples GWE-3D-1115 (680-118729-1), CPA-MW-3D-1115 (680-118729-3), CPA-MW-3D-1115-AD (680-118729-5), BSA-MW-2D-1115 (680-118729-6), CPA-MW-1D-1115 (680-118729-8) and 4Q15 LTM Trip Blank #4 (680-118729-10) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/11/2015 and 11/12/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-409836.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-410005.

Samples GWE-3D-1115 (680-118729-1)[20X], CPA-MW-3D-1115-AD (680-118729-5)[2X], BSA-MW-2D-1115 (680-118729-6)[250X], BSA-MW-2D-1115 (680-118729-6)[500X] and CPA-MW-1D-1115 (680-118729-8)[250X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

DISSOLVED GASES
Samples GWE-3D-1115 (680-118729-1), CPA-MW-3D-1115 (680-118729-3), BSA-MW-2D-1115 (680-118729-6) and CPA-MW-1D-1115 (680-118729-8) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 11/13/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-410176.

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

METALS (ICP)
Samples GWE-3D-F(0.2)-1115 (680-118729-2), CPA-MW-3D-F(0.2)-1115 (680-118729-4), BSA-MW-2D-F(0.2)-1115 (680-118729-7) and CPA-MW-1D-F(0.2)-1115 (680-118729-9) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/11/2015 and analyzed on 11/12/2015.

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

AW 11/27/15

Job ID: 680-118729-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

METALS (ICP)
Samples GWE-3D-1115 (680-118729-1), CPA-MW-3D-1115 (680-118729-3), BSA-MW-2D-1115 (680-118729-6) and CPA-MW-1D-1115 (680-118729-8) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/11/2015 and analyzed on 11/12/2015.

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

ALKALINITY
Samples GWE-3D-1115 (680-118729-1), CPA-MW-3D-1115 (680-118729-3), BSA-MW-2D-1115 (680-118729-6) and CPA-MW-1D-1115 (680-118729-8) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 11/16/2015.

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

CHLORIDE
Samples GWE-3D-1115 (680-118729-1), CPA-MW-3D-1115 (680-118729-3), BSA-MW-2D-1115 (680-118729-6) and CPA-MW-1D-1115 (680-118729-8) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 11/16/2015.

Chloride failed the recovery criteria low for the MS of sample BSA-MW-2D-1115MS (680-118729-6) in batch 680-410962.

Chloride failed the recovery criteria low for the MSD of sample BSA-MW-2D-1115MSD (680-118729-6) in batch 680-410962.

Samples GWE-3D-1115 (680-118729-1)[50X], CPA-MW-3D-1115 (680-118729-3)[5X], BSA-MW-2D-1115 (680-118729-6)[5X] and CPA-MW-1D-1115 (680-118729-8)[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 GWE-3D-1115 (680-118729-1), CPA-MW-3D-1115 (680-118729-3), BSA-MW-2D-1115 (680-118729-6) and CPA-MW-1D-1115 (680-118729-8) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 11/06/2015.

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

SULFATE
Samples GWE-3D-1115 (680-118729-1), CPA-MW-3D-1115 (680-118729-3), BSA-MW-2D-1115 (680-118729-6) and CPA-MW-1D-1115 (680-118729-8) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 11/16/2015 and 11/17/2015.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 680-410965 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Samples GWE-3D-1115 (680-118729-1)[10X] and BSA-MW-2D-1115 (680-118729-6)[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.

TOTAL ORGANIC CARBON
Samples GWE-3D-1115 (680-118729-1), CPA-MW-3D-1115 (680-118729-3), BSA-MW-2D-1115 (680-118729-6) and CPA-MW-1D-1115 (680-118729-8) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 11/17/2015.

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

DISSOLVED ORGANIC CARBON (DOC)
Samples GWE-3D-F(0.2)-1115 (680-118729-2), CPA-MW-3D-F(0.2)-1115 (680-118729-4), BSA-MW-2D-F(0.2)-1115 (680-118729-7) and CPA-MW-1D-F(0.2)-1115 (680-118729-9) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The

Job ID: 680-118729-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

samples were analyzed on 11/18/2015.

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: 4Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-118729-1	GWE-3D-1115	Water	11/05/15 11:55	11/06/15 09:54
680-118729-2	GWE-3D-F(0.2)-1115	Water	11/05/15 11:55	11/06/15 09:54
680-118729-3	CPA-MW-3D-1115	Water	11/05/15 13:58	11/06/15 09:54
680-118729-4	CPA-MW-3D-F(0.2)-1115	Water	11/05/15 13:58	11/06/15 09:54
680-118729-5	CPA-MW-3D-1115-AD	Water	11/05/15 13:58	11/06/15 09:54
680-118729-6	BSA-MW-2D-1115	Water	11/05/15 14:54	11/06/15 09:54
680-118729-7	BSA-MW-2D-F(0.2)-1115	Water	11/05/15 14:54	11/06/15 09:54
680-118729-8	CPA-MW-1D-1115	Water	11/05/15 16:15	11/06/15 09:54
680-118729-9	CPA-MW-1D-F(0.2)-1115	Water	11/05/15 16:15	11/06/15 09:54
680-118729-10	4Q15 LTM Trip Blank #4	Water	11/05/15 00:00	11/06/15 09:54

AMD 11/27/15
TestAmerica Savannah

Method Summary

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

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 SAV
415.1	DOC	MCAWW	TAL SAV

Protocol References:

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

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

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

Laboratory References:

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

MMO 11/27/15

TestAmerica Savannah

Definitions/Glossary

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

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.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

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

MWD 11/27/15
TestAmerica Savannah

Detection Summary

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: GWE-3D-1115 — Lab Sample ID: 680-118729-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	28	D	20		ug/L	20		8260B	Total/NA
Chlorobenzene	1400	D	20		ug/L	20		8260B	Total/NA
1,4-Dichlorobenzene	86	D	20		ug/L	20		8260B	Total/NA
Methane	230		0.58		ug/L	1		RSK-175	Total/NA
Iron	28		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.89		0.010		mg/L	1		6010C	Total Recoverable
Chloride	1300	D	50		mg/L	50		325.2	Total/NA
Sulfate	290	D	50		mg/L	10		375.4	Total/NA
Total Organic Carbon	7.5		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	460		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	19		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-3D-F(0.2)-1115 — Lab Sample ID: 680-118729-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	27		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.89		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	6.8		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-3D-1115 — Lab Sample ID: 680-118729-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.3		1.0		ug/L	1		8260B	Total/NA
Chlorobenzene	97		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	1.5		1.0		ug/L	1		8260B	Total/NA
Ethane	36		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	26000		390		ug/L	1		RSK-175	Total/NA
Iron	13		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.72		0.010		mg/L	1		6010C	Total Recoverable
Chloride	200	D	5.0		mg/L	5		325.2	Total/NA
Total Organic Carbon	9.1		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	640		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	16		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-3D-F(0.2)-1115 — Lab Sample ID: 680-118729-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	14		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.74		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	9.8		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-3D-1115-AD — Lab Sample ID: 680-118729-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2.3	D	2.0		ug/L	2		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

MWO 11/27/15
TestAmerica Savannah

Detection Summary

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: CPA-MW-3D-1115-AD (Continued) — Lab Sample ID: 680-118729-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	110	D	2.0		ug/L	2		8260B	Total/NA

Client Sample ID: BSA-MW-2D-1115 — Lab Sample ID: 680-118729-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	380	D	250		ug/L	250		8260B	Total/NA
Benzene - DL	65000	D	500		ug/L	500		8260B	Total/NA
Ethane	21		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	18000		390		ug/L	1		RSK-175	Total/NA
Iron	5.2		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.72		0.010		mg/L	1		6010C	Total Recoverable
Chloride	180	D	5.0		mg/L	5		325.2	Total/NA
Total Organic Carbon	11		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	760		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	14		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-2D-F(0.2)-1115 — Lab Sample ID: 680-118729-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	5.1		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.72		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	11		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-1D-1115 — Lab Sample ID: 680-118729-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4500	D	250		ug/L	250		8260B	Total/NA
Chlorobenzene	15000	D	250		ug/L	250		8260B	Total/NA
1,2-Dichlorobenzene	8900	D	250		ug/L	250		8260B	Total/NA
1,3-Dichlorobenzene	990	D	250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	8000	D	250		ug/L	250		8260B	Total/NA
Ethane	25		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	14000		390		ug/L	1		RSK-175	Total/NA
Iron	0.13		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.050		0.010		mg/L	1		6010C	Total Recoverable
Chloride	99	D	2.0		mg/L	2		325.2	Total/NA
Total Organic Carbon	11		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	900		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-1D-F(0.2)-1115 — Lab Sample ID: 680-118729-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	0.094		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.047		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	11		1.0		mg/L	1		415.1	Dissolved

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah
11/27/15

Detection Summary

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: 4Q15 LTM Trip Blank #4 — Lab Sample ID: 680-118729-10

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah
AWD 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: GWE-3D-1115

Date Collected: 11/05/15 11:55
Date Received: 11/06/15 09:54

Lab Sample ID: 680-118729-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	28	D	20		ug/L			11/11/15 17:10	20
Chlorobenzene	1400	D	20		ug/L			11/11/15 17:10	20
1,2-Dichlorobenzene	20	U	20		ug/L			11/11/15 17:10	20
1,3-Dichlorobenzene	20	U	20		ug/L			11/11/15 17:10	20
1,4-Dichlorobenzene	86	D	20		ug/L			11/11/15 17:10	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*70 - 130*		*11/11/15 17:10*	*20*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*		*11/11/15 17:10*	*20*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*11/11/15 17:10*	*20*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*11/11/15 17:10*	*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			11/13/15 01:03	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 01:03	1
Methane	230		0.58		ug/L			11/13/15 01:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	28		0.050		mg/L		11/11/15 10:02	11/12/15 20:33	1
Manganese	0.89		0.010		mg/L		11/11/15 10:02	11/12/15 20:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1300	D	50		mg/L			11/16/15 15:29	50
Nitrate as N	0.050	U	0.050		mg/L			11/06/15 15:19	1
Sulfate	290	D	50		mg/L			11/16/15 15:02	10
Total Organic Carbon	7.5		1.0		mg/L			11/17/15 20:31	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	460		5.0		mg/L			11/16/15 06:43	1
Carbon Dioxide, Free	19		5.0		mg/L			11/16/15 06:43	1

TestAmerica Savannah
AND 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: GWE-3D-F(0.2)-1115

Lab Sample ID: 680-118729-2

Date Collected: 11/05/15 11:55
Date Received: 11/06/15 09:54

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	27		0.050		mg/L		11/11/15 10:02	11/12/15 20:37	1
Manganese, Dissolved	0.89		0.010		mg/L		11/11/15 10:02	11/12/15 20:37	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.8		1.0		mg/L			11/18/15 04:58	1

TestAmerica Savannah
AWD 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: CPA-MW-3D-1115

Date Collected: 11/05/15 13:58
Date Received: 11/06/15 09:54

Lab Sample ID: 680-118729-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.3		1.0		ug/L			11/11/15 16:48	1
Chlorobenzene	97		1.0		ug/L			11/11/15 16:48	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/11/15 16:48	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/11/15 16:48	1
1,4-Dichlorobenzene	1.5		1.0		ug/L			11/11/15 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*70 - 130*		*11/11/15 16:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*84*		*70 - 130*		*11/11/15 16:48*	*1*
Dibromofluoromethane (Surr)	*88*		*70 - 130*		*11/11/15 16:48*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*11/11/15 16:48*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	36		1.1		ug/L			11/13/15 13:28	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 13:28	1
Methane (TCD)	26000		390		ug/L			11/13/15 13:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	13		0.050		mg/L		11/11/15 10:02	11/12/15 20:41	1
Manganese	0.72		0.010		mg/L		11/11/15 10:02	11/12/15 20:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	200	D	5.0		mg/L			11/16/15 14:46	5
Nitrate as N	0.050	U	0.050		mg/L			11/06/15 15:20	1
Sulfate	5.0	U	5.0		mg/L			11/16/15 14:11	1
Total Organic Carbon	9.1		1.0		mg/L			11/17/15 20:49	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	640		5.0		mg/L			11/16/15 06:54	1
Carbon Dioxide, Free	16		5.0		mg/L			11/16/15 06:54	1

TestAmerica Savannah
AWD 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: CPA-MW-3D-F(0.2)-1115

Lab Sample ID: 680-118729-4

Date Collected: 11/05/15 13:58
Date Received: 11/06/15 09:54

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		11/11/15 10:02	11/12/15 20:45	1
Manganese, Dissolved	0.74		0.010		mg/L		11/11/15 10:02	11/12/15 20:45	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	9.8		1.0		mg/L			11/18/15 05:13	1

Client Sample Results

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: CPA-MW-3D-1115-AD

Date Collected: 11/05/15 13:58
Date Received: 11/06/15 09:54

Lab Sample ID: 680-118729-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**2.3**		2.0		ug/L			11/12/15 14:39	2
Chlorobenzene	**110**		2.0		ug/L			11/12/15 14:39	2
1,2-Dichlorobenzene	2.0	U	2.0		ug/L			11/12/15 14:39	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			11/12/15 14:39	2
1,4-Dichlorobenzene	2.0	U	2.0		ug/L			11/12/15 14:39	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*86*		*70 - 130*		*11/12/15 14:39*	*2*
1,2-Dichloroethane-d4 (Surr)	*120*		*70 - 130*		*11/12/15 14:39*	*2*
Dibromofluoromethane (Surr)	*112*		*70 - 130*		*11/12/15 14:39*	*2*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*11/12/15 14:39*	*2*

Client Sample Results

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: BSA-MW-2D-1115

Lab Sample ID: 680-118729-6

Date Collected: 11/05/15 14:54
Date Received: 11/06/15 09:54

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	380	D	250		ug/L			11/11/15 17:55	250
1,2-Dichlorobenzene	250	U	250		ug/L			11/11/15 17:55	250
1,3-Dichlorobenzene	250	U	250		ug/L			11/11/15 17:55	250
1,4-Dichlorobenzene	250	U	250		ug/L			11/11/15 17:55	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*70 - 130*		*11/11/15 17:55*	*250*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*		*11/11/15 17:55*	*250*
Dibromofluoromethane (Surr)	*93*		*70 - 130*		*11/11/15 17:55*	*250*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*11/11/15 17:55*	*250*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	65000	D	500		ug/L			11/12/15 14:18	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*91*		*70 - 130*		*11/12/15 14:18*	*500*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*11/12/15 14:18*	*500*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*11/12/15 14:18*	*500*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*		*11/12/15 14:18*	*500*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	21		1.1		ug/L			11/13/15 13:43	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 13:43	1
Methane (TCD)	18000		390		ug/L			11/13/15 13:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	5.2		0.050		mg/L		11/11/15 10:02	11/12/15 20:49	1
Manganese	0.72		0.010		mg/L		11/11/15 10:02	11/12/15 20:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	180	D	5.0		mg/L			11/16/15 14:17	5
Nitrate as N	0.050	U	0.050		mg/L			11/06/15 15:22	1
Sulfate	50	U	50		mg/L			11/17/15 15:51	10
Total Organic Carbon	11	D	1.0		mg/L			11/17/15 21:02	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	760		5.0		mg/L			11/16/15 07:06	1
Carbon Dioxide, Free	14		5.0		mg/L			11/16/15 07:06	1

TestAmerica Savannah
MMD 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: BSA-MW-2D-F(0.2)-1115

Lab Sample ID: 680-118729-7

Date Collected: 11/05/15 14:54
Matrix: Water
Date Received: 11/06/15 09:54

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	5.1		0.050		mg/L		11/11/15 10:02	11/12/15 20:53	1
Manganese, Dissolved	0.72		0.010		mg/L		11/11/15 10:02	11/12/15 20:53	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	11		1.0		mg/L			11/18/15 05:26	1

Client Sample Results

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: CPA-MW-1D-1115

Date Collected: 11/05/15 16:15
Date Received: 11/06/15 09:54

Lab Sample ID: 680-118729-8

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	4500	D	250		ug/L			11/11/15 18:18	250
Chlorobenzene	15000	D	250		ug/L			11/11/15 18:18	250
1,2-Dichlorobenzene	8900	D	250		ug/L			11/11/15 18:18	250
1,3-Dichlorobenzene	990	D	250		ug/L			11/11/15 18:18	250
1,4-Dichlorobenzene	8000	D	250		ug/L			11/11/15 18:18	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*70 - 130*		*11/11/15 18:18*	*250*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 130*		*11/11/15 18:18*	*250*
Dibromofluoromethane (Surr)	*92*		*70 - 130*		*11/11/15 18:18*	*250*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*11/11/15 18:18*	*250*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	25		1.1		ug/L			11/13/15 13:57	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 13:57	1
Methane (TCD)	14000		390		ug/L			11/13/15 13:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.13		0.050		mg/L		11/11/15 10:02	11/12/15 20:57	1
Manganese	0.050		0.010		mg/L		11/11/15 10:02	11/12/15 20:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	99	D	2.0		mg/L			11/16/15 14:48	2
Nitrate as N	0.050	U	0.050		mg/L			11/06/15 15:23	1
Sulfate	5.0	U	5.0		mg/L			11/16/15 14:10	1
Total Organic Carbon	11		1.0		mg/L			11/17/15 21:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	900		5.0		mg/L			11/16/15 07:20	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/16/15 07:20	1

TestAmerica Savannah
AMD 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: CPA-MW-1D-F(0.2)-1115

Lab Sample ID: 680-118729-9

Date Collected: 11/05/15 16:15
Date Received: 11/06/15 09:54

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.094		0.050		mg/L		11/11/15 10:02	11/12/15 21:01	1
Manganese, Dissolved	0.047		0.010		mg/L		11/11/15 10:02	11/12/15 21:01	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	11		1.0		mg/L			11/18/15 05:39	1

TestAmerica Savannah
PMD 11/27/15

Client Sample Results

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: 4Q15 LTM Trip Blank #4

Lab Sample ID: 680-118729-10

Date Collected: 11/05/15 00:00
Date Received: 11/06/15 09:54

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			11/11/15 16:25	1
Chlorobenzene	1.0	U	1.0		ug/L			11/11/15 16:25	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/11/15 16:25	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/11/15 16:25	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/11/15 16:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*11/11/15 16:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 130*		*11/11/15 16:25*	*1*
Dibromofluoromethane (Surr)	*88*		*70 - 130*		*11/11/15 16:25*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*11/11/15 16:25*	*1*

TestAmerica Savannah
MMD 11/27/15

Surrogate Summary

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

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)
680-118729-1	GWE-3D-1115	92	93	96	94
680-118729-3	CPA-MW-3D-1115	95	84	88	96
680-118729-5	CPA-MW-3D-1115-AD	86	120	112	94
680-118729-6	BSA-MW-2D-1115	93	96	93	94
680-118729-6 - DL	BSA-MW-2D-1115	91	95	100	91
680-118729-8	CPA-MW-1D-1115	92	91	92	94
680-118729-10	4Q15 LTM Trip Blank #4	96	85	88	94
LCS 680-409836/4	Lab Control Sample	96	98	100	94
LCS 680-410005/4	Lab Control Sample	97	94	98	95
LCSD 680-409836/5	Lab Control Sample Dup	94	96	100	93
LCSD 680-410005/5	Lab Control Sample Dup	98	93	96	93
MB 680-409836/9	Method Blank	97	85	92	95
MB 680-410005/9	Method Blank	104	98	104	100

Surrogate Legend

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

QC Sample Results

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

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

Lab Sample ID: MB 680-409836/9
Matrix: Water
Analysis Batch: 409836

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

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*70 - 130*		*11/11/15 11:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 130*		*11/11/15 11:09*	*1*
Dibromofluoromethane (Surr)	*92*		*70 - 130*		*11/11/15 11:09*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*11/11/15 11:09*	*1*

Lab Sample ID: LCS 680-409836/4
Matrix: Water
Analysis Batch: 409836

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	49.5		ug/L		99	73 - 131
Chlorobenzene	50.0	46.9		ug/L		94	80 - 120
1,2-Dichlorobenzene	50.0	47.5		ug/L		95	80 - 120
1,3-Dichlorobenzene	50.0	47.5		ug/L		95	80 - 120
1,4-Dichlorobenzene	50.0	47.1		ug/L		94	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*
Dibromofluoromethane (Surr)	*100*		*70 - 130*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*

Lab Sample ID: LCSD 680-409836/5
Matrix: Water
Analysis Batch: 409836

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	2	30
Chlorobenzene	50.0	45.8		ug/L		92	80 - 120	2	20
1,2-Dichlorobenzene	50.0	47.3		ug/L		95	80 - 120	0	20
1,3-Dichlorobenzene	50.0	47.8		ug/L		96	80 - 120	1	20
1,4-Dichlorobenzene	50.0	47.0		ug/L		94	80 - 120	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*94*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*
Dibromofluoromethane (Surr)	*100*		*70 - 130*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*

TestAmerica Savannah
MWD 11/27/15

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

Lab Sample ID: MB 680-410005/9
Matrix: Water
Analysis Batch: 410005

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			11/12/15 10:25	1
Chlorobenzene	1.0	U	1.0		ug/L			11/12/15 10:25	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/12/15 10:25	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/12/15 10:25	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/12/15 10:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*70 - 130*		*11/12/15 10:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*11/12/15 10:25*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*11/12/15 10:25*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*11/12/15 10:25*	*1*

Lab Sample ID: LCS 680-410005/4
Matrix: Water
Analysis Batch: 410005

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	46.6		ug/L		93	73 - 131
Chlorobenzene	50.0	49.2		ug/L		98	80 - 120
1,2-Dichlorobenzene	50.0	49.3		ug/L		99	80 - 120
1,3-Dichlorobenzene	50.0	49.2		ug/L		98	80 - 120
1,4-Dichlorobenzene	50.0	48.6		ug/L		97	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: LCSD 680-410005/5
Matrix: Water
Analysis Batch: 410005

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	46.5		ug/L		93	73 - 131	0	30
Chlorobenzene	50.0	48.8		ug/L		98	80 - 120	1	20
1,2-Dichlorobenzene	50.0	48.1		ug/L		96	80 - 120	2	20
1,3-Dichlorobenzene	50.0	48.5		ug/L		97	80 - 120	1	20
1,4-Dichlorobenzene	50.0	47.6		ug/L		95	80 - 120	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*
Dibromofluoromethane (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*

QC Sample Results

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-410176/10
Matrix: Water
Analysis Batch: 410176

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			11/12/15 20:59	1
Ethylene	1.0	U	1.0		ug/L			11/12/15 20:59	1
Methane	0.58	U	0.58		ug/L			11/12/15 20:59	1

Lab Sample ID: LCS 680-410176/3
Matrix: Water
Analysis Batch: 410176

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	287		ug/L		99	75 - 125
Ethylene	269	266		ug/L		99	75 - 125
Methane	154	142		ug/L		93	75 - 125

Lab Sample ID: LCSD 680-410176/4
Matrix: Water
Analysis Batch: 410176

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	278		ug/L		96	75 - 125	3	30
Ethylene	269	258		ug/L		96	75 - 125	3	30
Methane	154	138		ug/L		90	75 - 125	3	30

Lab Sample ID: MB 680-410240/10
Matrix: Water
Analysis Batch: 410240

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			11/13/15 11:48	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 11:48	1
Methane	0.58	U	0.58		ug/L			11/13/15 11:48	1
Methane (TCD)	390	U	390		ug/L			11/13/15 11:48	1

Lab Sample ID: LCS 680-410240/3
Matrix: Water
Analysis Batch: 410240

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	291		ug/L		101	75 - 125
Ethylene	269	270		ug/L		100	75 - 125
Methane	154	145		ug/L		94	75 - 125

Lab Sample ID: LCS 680-410240/7
Matrix: Water
Analysis Batch: 410240

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	1740		ug/L		90	75 - 125

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

Lab Sample ID: LCSD 680-410240/4
Matrix: Water
Analysis Batch: 410240

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	253		ug/L		88	75 - 125	14	30
Ethylene	269	236		ug/L		88	75 - 125	14	30
Methane	154	127		ug/L		82	75 - 125	14	30

Lab Sample ID: LCSD 680-410240/8
Matrix: Water
Analysis Batch: 410240

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	1660		ug/L		86	75 - 125	5	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-409875/1-A
Matrix: Water
Analysis Batch: 410236

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 409875

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		11/11/15 10:02	11/12/15 19:06	1
Iron, Dissolved	0.050	U	0.050		mg/L		11/11/15 10:02	11/12/15 19:06	1
Manganese	0.010	U	0.010		mg/L		11/11/15 10:02	11/12/15 19:06	1
Manganese, Dissolved	0.010	U	0.010		mg/L		11/11/15 10:02	11/12/15 19:06	1

Lab Sample ID: LCS 680-409875/2-A
Matrix: Water
Analysis Batch: 410236

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 409875

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.01		mg/L		100	80 - 120
Iron, Dissolved	5.00	5.01		mg/L		100	80 - 120
Manganese	0.500	0.511		mg/L		102	80 - 120
Manganese, Dissolved	0.500	0.511		mg/L		102	80 - 120

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-410517/4
Matrix: Water
Analysis Batch: 410517

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			11/16/15 05:22	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/16/15 05:22	1

Lab Sample ID: LCS 680-410517/5
Matrix: Water
Analysis Batch: 410517

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	248	271		mg/L		109	80 - 120

Lab Sample ID: LCSD 680-410517/35
Matrix: Water
Analysis Batch: 410517

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	248	270		mg/L		109	80 - 120	0	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-410962/49
Matrix: Water
Analysis Batch: 410962

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			11/17/15 10:17	1

Lab Sample ID: LCS 680-410962/19
Matrix: Water
Analysis Batch: 410962

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	26.0		mg/L		104	85 - 115

Lab Sample ID: LCSD 680-410962/41
Matrix: Water
Analysis Batch: 410962

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	25.0	26.2		mg/L		105	85 - 115	1	30

Lab Sample ID: 680-118729-6 MS
Matrix: Water
Analysis Batch: 410962

Client Sample ID: BSA-MW-2D-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	180		25.0	192	4	mg/L		67	85 - 115

Lab Sample ID: 680-118729-6 MSD
Matrix: Water
Analysis Batch: 410962

Client Sample ID: BSA-MW-2D-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	180		25.0	195	4	mg/L		78	85 - 115	1	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-409381/13
Matrix: Water
Analysis Batch: 409381

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			11/06/15 14:48	1

AWD 11/27/15

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 680-409381/16
Matrix: Water
Analysis Batch: 409381

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	0.499		mg/L		100	75 - 125
Nitrate Nitrite as N	1.00	1.00		mg/L		100	90 - 110
Nitrite as N	0.500	0.501		mg/L		100	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-410965/49
Matrix: Water
Analysis Batch: 410965

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			11/17/15 10:11	1

Lab Sample ID: LCS 680-410965/40
Matrix: Water
Analysis Batch: 410965

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	19.2		mg/L		96	75 - 125

Lab Sample ID: LCSD 680-410965/30
Matrix: Water
Analysis Batch: 410965

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	19.1		mg/L		95	75 - 125	0	30

Lab Sample ID: 680-118729-6 MS
Matrix: Water
Analysis Batch: 410965

Client Sample ID: BSA-MW-2D-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50	U	20.0	50	U	mg/L		NC	75 - 125

Lab Sample ID: 680-118729-6 MSD
Matrix: Water
Analysis Batch: 410965

Client Sample ID: BSA-MW-2D-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	50	U	20.0	50	U	mg/L		NC	75 - 125	NC	30

Method: 415.1 - DOC

Lab Sample ID: MB 680-410972/50
Matrix: Water
Analysis Batch: 410972

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			11/18/15 00:37	1

Method: 415.1 - DOC (Continued)

Lab Sample ID: LCS 680-410972/51
Matrix: Water
Analysis Batch: 410972

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	16.0		mg/L		80	80 - 120

Method: 415.1 - TOC

Lab Sample ID: MB 680-410971/24
Matrix: Water
Analysis Batch: 410971

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			11/17/15 17:34	1

Lab Sample ID: LCS 680-410971/25
Matrix: Water
Analysis Batch: 410971

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.7		mg/L		99	80 - 120

Lab Sample ID: LLCS 680-410971/5
Matrix: Water
Analysis Batch: 410971

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.00	1.35		mg/L		135	50 - 150

Lab Sample ID: 680-118729-8 MS
Matrix: Water
Analysis Batch: 410971

Client Sample ID: CPA-MW-1D-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	11		20.0	34.7		mg/L		117	80 - 120

Lab Sample ID: 680-118729-8 MSD
Matrix: Water
Analysis Batch: 410971

Client Sample ID: CPA-MW-1D-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	11		20.0	30.5		mg/L		96	80 - 120	13	25

QC Association Summary

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

GC/MS VOA

Analysis Batch: 409836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118729-1	GWE-3D-1115	Total/NA	Water	8260B	
680-118729-3	CPA-MW-3D-1115	Total/NA	Water	8260B	
680-118729-6	BSA-MW-2D-1115	Total/NA	Water	8260B	
680-118729-8	CPA-MW-1D-1115	Total/NA	Water	8260B	
680-118729-10	4Q15 LTM Trip Blank #4	Total/NA	Water	8260B	
LCS 680-409836/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-409836/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-409836/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 410005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118729-5	CPA-MW-3D-1115-AD	Total/NA	Water	8260B	
680-118729-6 - DL	BSA-MW-2D-1115	Total/NA	Water	8260B	
LCS 680-410005/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-410005/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-410005/9	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 410176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118729-1	GWE-3D-1115	Total/NA	Water	RSK-175	
LCS 680-410176/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-410176/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-410176/10	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 410240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118729-3	CPA-MW-3D-1115	Total/NA	Water	RSK-175	
680-118729-6	BSA-MW-2D-1115	Total/NA	Water	RSK-175	
680-118729-8	CPA-MW-1D-1115	Total/NA	Water	RSK-175	
LCS 680-410240/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-410240/7	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-410240/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-410240/8	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-410240/10	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 409875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118729-1	GWE-3D-1115	Total Recoverable	Water	3005A	
680-118729-2	GWE-3D-F(0.2)-1115	Dissolved	Water	3005A	
680-118729-3	CPA-MW-3D-1115	Total Recoverable	Water	3005A	
680-118729-4	CPA-MW-3D-F(0.2)-1115	Dissolved	Water	3005A	
680-118729-6	BSA-MW-2D-1115	Total Recoverable	Water	3005A	
680-118729-7	BSA-MW-2D-F(0.2)-1115	Dissolved	Water	3005A	
680-118729-8	CPA-MW-1D-1115	Total Recoverable	Water	3005A	
680-118729-9	CPA-MW-1D-F(0.2)-1115	Dissolved	Water	3005A	
LCS 680-409875/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

AWD 11/27/15

QC Association Summary

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Metals (Continued)

Prep Batch: 409875 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-409875/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 410236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118729-1	GWE-3D-1115	Total Recoverable	Water	6010C	409875
680-118729-2	GWE-3D-F(0.2)-1115	Dissolved	Water	6010C	409875
680-118729-3	CPA-MW-3D-1115	Total Recoverable	Water	6010C	409875
680-118729-4	CPA-MW-3D-F(0.2)-1115	Dissolved	Water	6010C	409875
680-118729-6	BSA-MW-2D-1115	Total Recoverable	Water	6010C	409875
680-118729-7	BSA-MW-2D-F(0.2)-1115	Dissolved	Water	6010C	409875
680-118729-8	CPA-MW-1D-1115	Total Recoverable	Water	6010C	409875
680-118729-9	CPA-MW-1D-F(0.2)-1115	Dissolved	Water	6010C	409875
LCS 680-409875/2-A	Lab Control Sample	Total Recoverable	Water	6010C	409875
MB 680-409875/1-A	Method Blank	Total Recoverable	Water	6010C	409875

General Chemistry

Analysis Batch: 409381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118729-1	GWE-3D-1115	Total/NA	Water	353.2	
680-118729-3	CPA-MW-3D-1115	Total/NA	Water	353.2	
680-118729-6	BSA-MW-2D-1115	Total/NA	Water	353.2	
680-118729-8	CPA-MW-1D-1115	Total/NA	Water	353.2	
LCS 680-409381/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-409381/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 410517

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118729-1	GWE-3D-1115	Total/NA	Water	310.1	
680-118729-3	CPA-MW-3D-1115	Total/NA	Water	310.1	
680-118729-6	BSA-MW-2D-1115	Total/NA	Water	310.1	
680-118729-8	CPA-MW-1D-1115	Total/NA	Water	310.1	
LCS 680-410517/5	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-410517/35	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-410517/4	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 410962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118729-1	GWE-3D-1115	Total/NA	Water	325.2	
680-118729-3	CPA-MW-3D-1115	Total/NA	Water	325.2	
680-118729-6	BSA-MW-2D-1115	Total/NA	Water	325.2	
680-118729-6 MS	BSA-MW-2D-1115	Total/NA	Water	325.2	
680-118729-6 MSD	BSA-MW-2D-1115	Total/NA	Water	325.2	
680-118729-8	CPA-MW-1D-1115	Total/NA	Water	325.2	
LCS 680-410962/19	Lab Control Sample	Total/NA	Water	325.2	
LCSD 680-410962/41	Lab Control Sample Dup	Total/NA	Water	325.2	
MB 680-410962/49	Method Blank	Total/NA	Water	325.2	

QC Association Summary

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

General Chemistry (Continued)

Analysis Batch: 410965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118729-1	GWE-3D-1115	Total/NA	Water	375.4	
680-118729-3	CPA-MW-3D-1115	Total/NA	Water	375.4	
680-118729-6	BSA-MW-2D-1115	Total/NA	Water	375.4	
680-118729-6 MS	BSA-MW-2D-1115	Total/NA	Water	375.4	
680-118729-6 MSD	BSA-MW-2D-1115	Total/NA	Water	375.4	
680-118729-8	CPA-MW-1D-1115	Total/NA	Water	375.4	
LCS 680-410965/40	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-410965/30	Lab Control Sample Dup	Total/NA	Water	375.4	
MB 680-410965/49	Method Blank	Total/NA	Water	375.4	

Analysis Batch: 410971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118729-1	GWE-3D-1115	Total/NA	Water	415.1	
680-118729-3	CPA-MW-3D-1115	Total/NA	Water	415.1	
680-118729-6	BSA-MW-2D-1115	Total/NA	Water	415.1	
680-118729-8	CPA-MW-1D-1115	Total/NA	Water	415.1	
680-118729-8 MS	CPA-MW-1D-1115	Total/NA	Water	415.1	
680-118729-8 MSD	CPA-MW-1D-1115	Total/NA	Water	415.1	
LCS 680-410971/25	Lab Control Sample	Total/NA	Water	415.1	
LLCS 680-410971/5	Lab Control Sample	Total/NA	Water	415.1	
MB 680-410971/24	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 410972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118729-2	GWE-3D-F(0.2)-1115	Dissolved	Water	415.1	
680-118729-4	CPA-MW-3D-F(0.2)-1115	Dissolved	Water	415.1	
680-118729-7	BSA-MW-2D-F(0.2)-1115	Dissolved	Water	415.1	
680-118729-9	CPA-MW-1D-F(0.2)-1115	Dissolved	Water	415.1	
LCS 680-410972/51	Lab Control Sample	Dissolved	Water	415.1	
MB 680-410972/50	Method Blank	Dissolved	Water	415.1	

TestAmerica Savannah
MMP 11/27/15

Lab Chronicle

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: GWE-3D-1115

Lab Sample ID: 680-118729-1
Date Collected: 11/05/15 11:55
Matrix: Water
Date Received: 11/06/15 09:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	409836	11/11/15 17:10	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	410176	11/13/15 01:03	AAH	TAL SAV
Total Recoverable	Prep	3005A			409875	11/11/15 10:02	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	410236	11/12/15 20:33	BWR	TAL SAV
Total/NA	Analysis	310.1		1	410517	11/16/15 06:43	DAM	TAL SAV
Total/NA	Analysis	325.2		50	410962	11/16/15 15:29	JME	TAL SAV
Total/NA	Analysis	353.2		1	409381	11/06/15 15:19	GRX	TAL SAV
Total/NA	Analysis	375.4		10	410965	11/16/15 15:02	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 20:31	KMB	TAL SAV

Client Sample ID: GWE-3D-F(0.2)-1115

Lab Sample ID: 680-118729-2
Date Collected: 11/05/15 11:55
Matrix: Water
Date Received: 11/06/15 09:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409875	11/11/15 10:02	CRW	TAL SAV
Dissolved	Analysis	6010C		1	410236	11/12/15 20:37	BWR	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 04:58	KMB	TAL SAV

Client Sample ID: CPA-MW-3D-1115

Lab Sample ID: 680-118729-3
Date Collected: 11/05/15 13:58
Matrix: Water
Date Received: 11/06/15 09:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409836	11/11/15 16:48	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	410240	11/13/15 13:28	SMC	TAL SAV
Total Recoverable	Prep	3005A			409875	11/11/15 10:02	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	410236	11/12/15 20:41	BWR	TAL SAV
Total/NA	Analysis	310.1		1	410517	11/16/15 06:54	DAM	TAL SAV
Total/NA	Analysis	325.2		5	410962	11/16/15 14:46	JME	TAL SAV
Total/NA	Analysis	353.2		1	409381	11/06/15 15:20	GRX	TAL SAV
Total/NA	Analysis	375.4		1	410965	11/16/15 14:11	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 20:49	KMB	TAL SAV

Client Sample ID: CPA-MW-3D-F(0.2)-1115

Lab Sample ID: 680-118729-4
Date Collected: 11/05/15 13:58
Matrix: Water
Date Received: 11/06/15 09:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409875	11/11/15 10:02	CRW	TAL SAV
Dissolved	Analysis	6010C		1	410236	11/12/15 20:45	BWR	TAL SAV

Lab Chronicle

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: CPA-MW-3D-F(0.2)-1115
Lab Sample ID: 680-118729-4
Date Collected: 11/05/15 13:58
Matrix: Water
Date Received: 11/06/15 09:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	410972	11/18/15 05:13	KMB	TAL SAV

Client Sample ID: CPA-MW-3D-1115-AD
Lab Sample ID: 680-118729-5
Date Collected: 11/05/15 13:58
Matrix: Water
Date Received: 11/06/15 09:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	410005	11/12/15 14:39	CEJ	TAL SAV

Client Sample ID: BSA-MW-2D-1115
Lab Sample ID: 680-118729-6
Date Collected: 11/05/15 14:54
Matrix: Water
Date Received: 11/06/15 09:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL	500	410005	11/12/15 14:18	CEJ	TAL SAV
Total/NA	Analysis	8260B		250	409836	11/11/15 17:55	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	410240	11/13/15 13:43	SMC	TAL SAV
Total Recoverable	Prep	3005A			409875	11/11/15 10:02	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	410236	11/12/15 20:49	BWR	TAL SAV
Total/NA	Analysis	310.1		1	410517	11/16/15 07:06	DAM	TAL SAV
Total/NA	Analysis	325.2		5	410962	11/16/15 14:17	JME	TAL SAV
Total/NA	Analysis	353.2		1	409381	11/06/15 15:22	GRX	TAL SAV
Total/NA	Analysis	375.4		10	410965	11/17/15 15:51	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 21:02	KMB	TAL SAV

Client Sample ID: BSA-MW-2D-F(0.2)-1115
Lab Sample ID: 680-118729-7
Date Collected: 11/05/15 14:54
Matrix: Water
Date Received: 11/06/15 09:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409875	11/11/15 10:02	CRW	TAL SAV
Dissolved	Analysis	6010C		1	410236	11/12/15 20:53	BWR	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 05:26	KMB	TAL SAV

Client Sample ID: CPA-MW-1D-1115
Lab Sample ID: 680-118729-8
Date Collected: 11/05/15 16:15
Matrix: Water
Date Received: 11/06/15 09:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	409836	11/11/15 18:18	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	410240	11/13/15 13:57	SMC	TAL SAV

Lab Chronicle

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

Client Sample ID: CPA-MW-1D-1115

Lab Sample ID: 680-118729-8

Date Collected: 11/05/15 16:15
Date Received: 11/06/15 09:54

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			409875	11/11/15 10:02	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	410236	11/12/15 20:57	BWR	TAL SAV
Total/NA	Analysis	310.1		1	410517	11/16/15 07:20	DAM	TAL SAV
Total/NA	Analysis	325.2		2	410962	11/16/15 14:48	JME	TAL SAV
Total/NA	Analysis	353.2		1	409381	11/06/15 15:23	GRX	TAL SAV
Total/NA	Analysis	375.4		1	410965	11/16/15 14:10	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 21:46	KMB	TAL SAV

Client Sample ID: CPA-MW-1D-F(0.2)-1115

Lab Sample ID: 680-118729-9

Date Collected: 11/05/15 16:15
Date Received: 11/06/15 09:54

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			409875	11/11/15 10:02	CRW	TAL SAV
Dissolved	Analysis	6010C		1	410236	11/12/15 21:01	BWR	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 05:39	KMB	TAL SAV

Client Sample ID: 4Q15 LTM Trip Blank #4

Lab Sample ID: 680-118729-10

Date Collected: 11/05/15 00:00
Date Received: 11/06/15 09:54

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	409836	11/11/15 16:25	CEJ	TAL SAV

Laboratory References:

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

TestAmerica Savannah
AWD 11/27/15

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: Emily White

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Sinaiko~~	Date: 11/5/15	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: E. White
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 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
GWE-3D-1115	11/5/15	1155	G	W	14	N		3	1	1	1	3	2	3			2 coolers
GWE-3D-F(0.2)-1115		1155			4	Y									1	3	
CPA-MW-3D-1115		1358			14	N		3	1	1	1	3	2	3			
CPA-MW-3D-F(0.2)-1115		1358			4	Y									1	3	
CPA-MW-3D-1115-AD		1358			3	N		3									
BSA-MW-2D-1115		1454			14	N		3	1	1	1	3	2	3			
BSA-MW-2D-F(0.2)		1454			4	Y									1	3	
CPA-MW-1D-1115		1615			14	N		3	1	1	1	3	2	3			
CPA-MW-1D-F(0.2)-1115		1615			4	Y									1	3	
4Q15 LTM Trip Blank #4					2	N		2									
								2	4		2	1,3	3		4		

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

680-118729 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 ...)

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

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

680-118729

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 799871 / 799841 | Cooler Temp. (°C): Obs'd: 5.0 Corr'd: 5.4 | Therm ID No.:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder	11/5/15 1515			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
			[signature]	TA	11/6/15 09:54

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

13

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-118729-1
SDG Number: KPS155

Login Number: 118729
List Number: 1
Creator: Kicklighter, Marilyn D

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	

AMD 11/27/15

Certification Summary

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

TestAmerica Job ID: 680-118729-1
SDG: KPS155

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	06-30-16
Arkansas DEQ	State Program	6	88-0692	01-31-16 *
California	State Program	9	2939	07-31-16
Colorado	State Program	8	N/A	12-31-15 *
Connecticut	State Program	1	PH-0161	03-31-17
Florida	NELAP	4	E87052	06-30-16
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	803	06-30-16
Guam	State Program	9	14-004r	04-16-16
Hawaii	State Program	9	N/A	06-30-16
Illinois	NELAP	5	200022	11-30-15 *
Indiana	State Program	5	N/A	06-30-16
Iowa	State Program	7	353	06-30-17
Kentucky (DW)	State Program	4	90084	12-31-15 *
Kentucky (UST)	State Program	4	18	06-30-16
Kentucky (WW)	State Program	4	90084	12-31-15 *
Louisiana	NELAP	6	30690	06-30-16
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	06-30-16
Michigan	State Program	5	9925	03-05-16
Mississippi	State Program	4	N/A	06-30-15 *
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-16
New Jersey	NELAP	2	GA769	10-31-15 *
New Mexico	State Program	6	N/A	06-30-16
New York	NELAP	2	10842	03-31-16
North Carolina (DW)	State Program	4	13701	07-31-16
North Carolina (WW/SW)	State Program	4	269	12-31-15 *
Oklahoma	State Program	6	9984	08-31-16
Pennsylvania	NELAP	3	68-00474	06-30-16
Puerto Rico	State Program	2	GA00006	12-31-15 *
South Carolina	State Program	4	98001	06-30-15 *
Tennessee	State Program	4	TN02961	06-30-16
Texas	NELAP	6	T104704185-14-7	11-30-15 *
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-16
Washington	State Program	10	C805	06-10-16
West Virginia (DW)	State Program	3	9950C	12-31-15 *
West Virginia DEP	State Program	3	094	06-30-16
Wisconsin	State Program	5	999819810	08-31-16
Wyoming	State Program	8	8TMS-L	06-30-16

* Certification renewal pending - certification considered valid.

TestAmerica Savannah
MWD 11/27/15

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
4Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-4Q15 LTM
Reviewer: A. Derhake
Laboratory: TestAmerica
SDG#: KPS156
Matrix: Water

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

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

Sample Names: GWE-1D-1115, GWE-1D-F(0.2)-1115, CPA-MW-2D-1115, CPA-MW-2D-F(0.2)-1115, CPA-MW-2D-1115-AD, BSA-MW-1S-1115, BSA-MW-1S-F(0.2)-1115, BSA-MW-1S-1115-EB, 4Q15 LTM Trip Blank #5

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

Comments:

VOC: Insufficient sample volume to perform MS/MSD for analytical batches 410673 and 411080. Due to lab contamination during lab testing and subsequent sample loss due to instrument error, BSA-MW-1S-1115-EB was run at dilution due to insufficient sample volume. Samples GWE-1D-1115, CPA-MW-2D-1115-AD, BSA-MW-1S-1115, and BSA-MW-1S-1115-EB required dilution prior to analysis, reporting limits were adjusted accordingly.

Dissolved Gases: No deficiencies noted.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples GWE-1D-1115, CPA-MW-2D-1115, and BSA-MW-1S-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: MS/MSD recoveries for analytical batch 410965 were outside control limits. Samples GWE-1D-1115, CPA-MW-2D-1115, and BSA-MW-1S-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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

Comments: Samples were received at 1.6°C, some outside the 4°C +/- 2°C criteria.

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

Comments: Detections in diluted analysis were qualified.

GC/MS Instrument Performance Check (IPC) and Internal Standards (IS)	YES	NO	NA
a) IPC analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
b) Does BFB 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 for BSA-MW-1S were submitted with SDG KPS156. Benzene was detected in the EB, qualification was not required due to 5x dilution rule.

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

Comments: None

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

Comments: None

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

Comments: None

Duplicates

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

Comments: None

Additional Comments: None

Qualifications:

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

SDG KPS156

Sample Results from:

GWE-1D
CPA-MW-2D
BSA-MW-1S

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: 680-118812-1
TestAmerica Sample Delivery Group: KPS156
Client Project/Site: 4Q15 LTM GW Sampling - 1403345
Revision: 1

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

Attn: Mr. Jerry Rinaldi

Michele R Kersey

Authorized for release by:
12/9/2015 10:41:27 AM

Michele Kersey, Project Manager I
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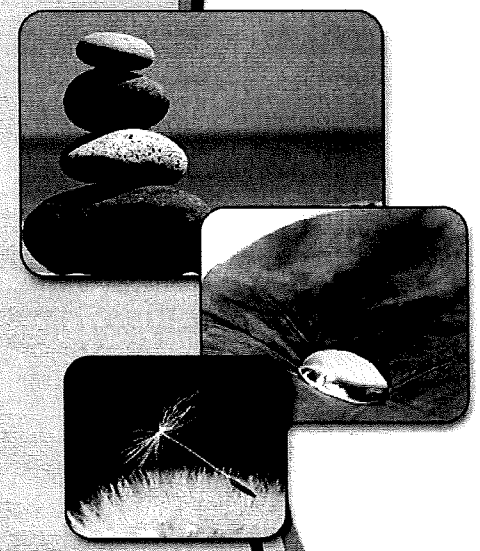

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions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

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

Results relate only to the items tested and the sample(s) as received by the laboratory. AMD 12/3/15

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AWD
12/3/15

Job ID: 680-118812-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 4Q15 LTM GW Sampling - 1403345

Report Number: 680-118812-1

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

RECEIPT
The samples were received on 11/10/2015 9:36 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6° C.

NOTE: Report revised 12/09/15 to switch sample results for samples GWE-1D-1115 & CPA-MW-2D-1115 for method 8260. It appears that the labels may have been switched, or the sample placed in the incorrect vials.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples GWE-1D-1115 (680-118812-1), CPA-MW-2D-1115 (680-118812-3), CPA-MW-2D-1115-AD (680-118812-5), BSA-MW-1S-1115 (680-118812-6), BSA-MW-1S-1115-EB (680-118812-8) and 4Q15 LTM Trip Blank #5 (680-118812-9) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/17/2015, 11/19/2015 and 11/20/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-410673.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-411080.

The initial analysis had carry-over contamination for chlorobenzene and 1,4-dichlorobenzene from the previous sample. A second analysis was lost due to instrument error. The reported analysis is at a 5X due to insufficient volume remaining for a third 1X run.
BSA-MW-1S-1115-EB (680-118812-8)

Samples GWE-1D-1115 (680-118812-1)[500X], CPA-MW-2D-1115-AD (680-118812-5)[250X], BSA-MW-1S-1115 (680-118812-6)[10000X] and BSA-MW-1S-1115-EB (680-118812-8)[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 GASES
Samples GWE-1D-1115 (680-118812-1), CPA-MW-2D-1115 (680-118812-3) and BSA-MW-1S-1115 (680-118812-6) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 11/13/2015.

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

METALS (ICP)
Samples GWE-1D-F(0.2)-1115 (680-118812-2), CPA-MW-2D-F(0-2)-1115 (680-118812-4) and BSA-MW-1S-F(0.2)-1115 (680-118812-7) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/12/2015 and analyzed

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Job ID: 680-118812-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

on 11/13/2015.

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

METALS (ICP)
Samples GWE-1D-1115 (680-118812-1), CPA-MW-2D-1115 (680-118812-3) and BSA-MW-1S-1115 (680-118812-6) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/12/2015 and analyzed on 11/13/2015.

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

ALKALINITY
Samples GWE-1D-1115 (680-118812-1), CPA-MW-2D-1115 (680-118812-3) and BSA-MW-1S-1115 (680-118812-6) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 11/19/2015.

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

CHLORIDE
Samples GWE-1D-1115 (680-118812-1), CPA-MW-2D-1115 (680-118812-3) and BSA-MW-1S-1115 (680-118812-6) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 11/16/2015.

Samples GWE-1D-1115 (680-118812-1)[2X], CPA-MW-2D-1115 (680-118812-3)[2X] and BSA-MW-1S-1115 (680-118812-6)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

NITRATE-NITRITE AS NITROGEN
Samples GWE-1D-1115 (680-118812-1), CPA-MW-2D-1115 (680-118812-3) and BSA-MW-1S-1115 (680-118812-6) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 11/10/2015.

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

SULFATE
Samples GWE-1D-1115 (680-118812-1), CPA-MW-2D-1115 (680-118812-3) and BSA-MW-1S-1115 (680-118812-6) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 11/16/2015.

Samples GWE-1D-1115 (680-118812-1)[10X], CPA-MW-2D-1115 (680-118812-3)[5X] and BSA-MW-1S-1115 (680-118812-6)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 680-410965 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

TOTAL ORGANIC CARBON
Samples GWE-1D-1115 (680-118812-1), CPA-MW-2D-1115 (680-118812-3) and BSA-MW-1S-1115 (680-118812-6) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 11/17/2015.

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

DISSOLVED ORGANIC CARBON (DOC)
Samples GWE-1D-F(0.2)-1115 (680-118812-2), CPA-MW-2D-F(0-2)-1115 (680-118812-4) and BSA-MW-1S-F(0.2)-1115 (680-118812-7) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 11/18/2015.

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

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Sample Summary

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-118812-1	GWE-1D-1115	Water	11/09/15 13:15	11/10/15 09:36
680-118812-2	GWE-1D-F(0.2)-1115	Water	11/09/15 13:15	11/10/15 09:36
680-118812-3	CPA-MW-2D-1115	Water	11/09/15 15:22	11/10/15 09:36
680-118812-4	CPA-MW-2D-F(0-2)-1115	Water	11/09/15 15:22	11/10/15 09:36
680-118812-5	CPA-MW-2D-1115-AD	Water	11/09/15 15:22	11/10/15 09:36
680-118812-6	BSA-MW-1S-1115	Water	11/09/15 16:32	11/10/15 09:36
680-118812-7	BSA-MW-1S-F(0.2)-1115	Water	11/09/15 16:32	11/10/15 09:36
680-118812-8	BSA-MW-1S-1115-EB	Water	11/09/15 17:30	11/10/15 09:36
680-118812-9	4Q15 LTM Trip Blank #5	Water	11/09/15 00:00	11/10/15 09:36

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TestAmerica Savannah

Method Summary

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

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 SAV
415.1	DOC	MCAWW	TAL SAV

Protocol References:

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

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

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

Laboratory References:

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

AWD 12/3/15

TestAmerica Savannah

Definitions/Glossary

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

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)

TestAmerica Savannah
AWD 12/13/15

Detection Summary

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: GWE-1D-1115 — Lab Sample ID: 680-118812-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	23		0.58		ug/L	1		RSK-175	Total/NA
Iron	22		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.76		0.010		mg/L	1		6010C	Total Recoverable
Chloride	74	D	2.0		mg/L	2		325.2	Total/NA
Sulfate	290	D	50		mg/L	10		375.4	Total/NA
Total Organic Carbon	4.8		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	24		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-1D-F(0.2)-1115 — Lab Sample ID: 680-118812-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	20		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.73		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	6.7		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-2D-1115 — Lab Sample ID: 680-118812-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	31000	D	500		ug/L	500		8260B	Total/NA
1,4-Dichlorobenzene	4900	D	500		ug/L	500		8260B	Total/NA
Ethane	2.3		1.1		ug/L	1		RSK-175	Total/NA
Ethylene	1.6		1.0		ug/L	1		RSK-175	Total/NA
Methane (TCD)	780		390		ug/L	1		RSK-175	Total/NA
Iron	8.2		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.44		0.010		mg/L	1		6010C	Total Recoverable
Chloride	59	D	2.0		mg/L	2		325.2	Total/NA
Sulfate	85	D	25		mg/L	5		375.4	Total/NA
Total Organic Carbon	7.2		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	520		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	19		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-2D-F(0-2)-1115 — Lab Sample ID: 680-118812-4

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	0.44		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	8.7		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-2D-1115-AD — Lab Sample ID: 680-118812-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	31000	D	250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	4900	D	250		ug/L	250		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah
RWD 12/3/15

Detection Summary

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: BSA-MW-1S-1115 — Lab Sample ID: 680-118812-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	760000	D	10000		ug/L	10000		8260B	Total/NA
Methane (TCD)	11000		390		ug/L	1		RSK-175	Total/NA
Iron	12		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.95		0.010		mg/L	1		6010C	Total Recoverable
Chloride	110	D	5.0		mg/L	5		325.2	Total/NA
Sulfate	45	D	10		mg/L	2		375.4	Total/NA
Total Organic Carbon	48		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	1000		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	33		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-1S-F(0.2)-1115 — Lab Sample ID: 680-118812-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	13		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	1.0		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	30		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: BSA-MW-1S-1115-EB — Lab Sample ID: 680-118812-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	130	D	5.0		ug/L	5		8260B	Total/NA

Client Sample ID: 4Q15 LTM Trip Blank #5 — Lab Sample ID: 680-118812-9

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah
AWD 12/3/15

Client Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: GWE-1D-1115

Lab Sample ID: 680-118812-1

Date Collected: 11/09/15 13:15
Date Received: 11/10/15 09:36

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			11/20/15 12:16	1
Chlorobenzene	1.0	U	1.0		ug/L			11/20/15 12:16	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/15 12:16	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/15 12:16	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/15 12:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*11/20/15 12:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 130*		*11/20/15 12:16*	*1*
Dibromofluoromethane (Surr)	*91*		*70 - 130*		*11/20/15 12:16*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*11/20/15 12:16*	*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			11/13/15 14:26	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 14:26	1
Methane	23		0.58		ug/L			11/13/15 14:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	22		0.050		mg/L		11/12/15 08:37	11/13/15 00:03	1
Manganese	0.76		0.010		mg/L		11/12/15 08:37	11/13/15 00:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	74	D	2.0		mg/L			11/16/15 14:48	2
Nitrate as N	0.050	U	0.050		mg/L			11/10/15 12:45	1
Sulfate	290	D	50		mg/L			11/16/15 14:54	10
Total Organic Carbon	4.8		1.0		mg/L			11/17/15 22:29	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	530		5.0		mg/L			11/19/15 17:54	1
Carbon Dioxide, Free	24		5.0		mg/L			11/19/15 17:54	1

TestAmerica Savannah
MWD 12/3/15

Client Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: GWE-1D-F(0.2)-1115

Lab Sample ID: 680-118812-2

Date Collected: 11/09/15 13:15
Date Received: 11/10/15 09:36

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	20		0.050		mg/L		11/12/15 08:37	11/13/15 00:07	1
Manganese, Dissolved	0.73		0.010		mg/L		11/12/15 08:37	11/13/15 00:07	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.7		1.0		mg/L			11/18/15 05:55	1

Client Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: CPA-MW-2D-1115

Lab Sample ID: 680-118812-3

Date Collected: 11/09/15 15:22
Date Received: 11/10/15 09:36

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	500	U	500		ug/L			11/19/15 15:33	500
Chlorobenzene	31000	D	500		ug/L			11/19/15 15:33	500
1,2-Dichlorobenzene	500	U	500		ug/L			11/19/15 15:33	500
1,3-Dichlorobenzene	500	U	500		ug/L			11/19/15 15:33	500
1,4-Dichlorobenzene	4900	D	500		ug/L			11/19/15 15:33	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*70 - 130*		*11/19/15 15:33*	*500*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*11/19/15 15:33*	*500*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*11/19/15 15:33*	*500*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*11/19/15 15:33*	*500*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	2.3		1.1		ug/L			11/13/15 14:41	1
Ethylene	1.6		1.0		ug/L			11/13/15 14:41	1
Methane (TCD)	780		390		ug/L			11/13/15 14:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	8.2		0.050		mg/L		11/12/15 08:37	11/13/15 00:11	1
Manganese	0.44		0.010		mg/L		11/12/15 08:37	11/13/15 00:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	59	D	2.0		mg/L			11/16/15 14:46	2
Nitrate as N	0.050	U	0.050		mg/L			11/10/15 12:49	1
Sulfate	85	D	25		mg/L			11/16/15 15:04	5
Total Organic Carbon	7.2		1.0		mg/L			11/17/15 22:41	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	520		5.0		mg/L			11/19/15 18:04	1
Carbon Dioxide, Free	19		5.0		mg/L			11/19/15 18:04	1

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MWD 12/3/15

Client Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: CPA-MW-2D-F(0-2)-1115

Lab Sample ID: 680-118812-4

Date Collected: 11/09/15 15:22
Matrix: Water
Date Received: 11/10/15 09:36

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	7.8		0.050		mg/L		11/12/15 08:37	11/13/15 00:23	1
Manganese, Dissolved	0.44		0.010		mg/L		11/12/15 08:37	11/13/15 00:23	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	8.7		1.0		mg/L			11/18/15 06:36	1

TestAmerica Savannah
MWD 12/3/15

Client Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: CPA-MW-2D-1115-AD

Lab Sample ID: 680-118812-5

Date Collected: 11/09/15 15:22
Date Received: 11/10/15 09:36

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	250	U	250		ug/L			11/19/15 15:53	250
Chlorobenzene	**31000**	D	250		ug/L			11/19/15 15:53	250
1,2-Dichlorobenzene	250	U	250		ug/L			11/19/15 15:53	250
1,3-Dichlorobenzene	250	U	250		ug/L			11/19/15 15:53	250
1,4-Dichlorobenzene	**4900**	D	250		ug/L			11/19/15 15:53	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*70 - 130*		*11/19/15 15:53*	*250*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*		*11/19/15 15:53*	*250*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*11/19/15 15:53*	*250*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*11/19/15 15:53*	*250*

TestAmerica Savannah

PWD 12/3/15

Client Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

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

Lab Sample ID: 680-118812-6

Date Collected: 11/09/15 16:32
Date Received: 11/10/15 09:36

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	760000	D	10000		ug/L			11/19/15 14:52	10000
Chlorobenzene	10000	U	10000		ug/L			11/19/15 14:52	10000
1,2-Dichlorobenzene	10000	U	10000		ug/L			11/19/15 14:52	10000
1,3-Dichlorobenzene	10000	U	10000		ug/L			11/19/15 14:52	10000
1,4-Dichlorobenzene	10000	U	10000		ug/L			11/19/15 14:52	10000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*70 - 130*		*11/19/15 14:52*	*10000*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*		*11/19/15 14:52*	*10000*
Dibromofluoromethane (Surr)	*107*		*70 - 130*		*11/19/15 14:52*	*10000*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*11/19/15 14:52*	*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			11/13/15 14:55	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 14:55	1
Methane (TCD)	11000		390		ug/L			11/13/15 14:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	12		0.050		mg/L		11/12/15 08:37	11/13/15 00:26	1
Manganese	0.95		0.010		mg/L		11/12/15 08:37	11/13/15 00:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	110	D	5.0		mg/L			11/16/15 15:29	5
Nitrate as N	0.050	U	0.050		mg/L			11/10/15 12:50	1
Sulfate	45	D	10		mg/L			11/16/15 15:04	2
Total Organic Carbon	48		1.0		mg/L			11/17/15 22:55	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	1000		5.0		mg/L			11/19/15 18:19	1
Carbon Dioxide, Free	33		5.0		mg/L			11/19/15 18:19	1

TestAmerica Savannah
MWD 12/3/15

Client Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: BSA-MW-1S-F(0.2)-1115

Lab Sample ID: 680-118812-7

Date Collected: 11/09/15 16:32
Date Received: 11/10/15 09:36

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	13		0.050		mg/L		11/12/15 08:37	11/13/15 00:30	1
Manganese, Dissolved	1.0		0.010		mg/L		11/12/15 08:37	11/13/15 00:30	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	30		1.0		mg/L			11/18/15 06:49	1

Client Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: BSA-MW-1S-1115-EB

Lab Sample ID: 680-118812-8

Date Collected: 11/09/15 17:30
Date Received: 11/10/15 09:36

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	130	D	5.0		ug/L			11/20/15 13:24	5
Chlorobenzene	5.0	U	5.0		ug/L			11/20/15 13:24	5
1,2-Dichlorobenzene	5.0	U	5.0		ug/L			11/20/15 13:24	5
1,3-Dichlorobenzene	5.0	U	5.0		ug/L			11/20/15 13:24	5
1,4-Dichlorobenzene	5.0	U	5.0		ug/L			11/20/15 13:24	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*70 - 130*		*11/20/15 13:24*	*5*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 130*		*11/20/15 13:24*	*5*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*11/20/15 13:24*	*5*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*11/20/15 13:24*	*5*

Client Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: 4Q15 LTM Trip Blank #5

Lab Sample ID: 680-118812-9

Date Collected: 11/09/15 00:00
Matrix: Water
Date Received: 11/10/15 09:36

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			11/17/15 17:45	1
Chlorobenzene	1.0	U	1.0		ug/L			11/17/15 17:45	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/17/15 17:45	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/17/15 17:45	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/17/15 17:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*11/17/15 17:45*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 130*		*11/17/15 17:45*	*1*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*11/17/15 17:45*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*11/17/15 17:45*	*1*

TestAmerica Savannah
RWD 12/3/15

Surrogate Summary

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

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)**
680-118812-1	GWE-1D-1115	96	85	91	98
680-118812-3	CPA-MW-2D-1115	108	95	98	96
680-118812-5	CPA-MW-2D-1115-AD	109	96	100	95
680-118812-6	BSA-MW-1S-1115	109	107	107	98
680-118812-8	BSA-MW-1S-1115-EB	92	105	104	98
680-118812-9	4Q15 LTM Trip Blank #5	96	89	100	99
LCS 680-410673/4	Lab Control Sample	95	87	96	100
LCS 680-411080/4	Lab Control Sample	114	105	108	103
LCS 680-411284/4	Lab Control Sample	95	88	94	99
LCSD 680-410673/5	Lab Control Sample Dup	93	88	96	102
LCSD 680-411080/5	Lab Control Sample Dup	112	98	104	103
LCSD 680-411284/5	Lab Control Sample Dup	96	93	96	99
MB 680-410673/9	Method Blank	97	86	93	98
MB 680-411080/9	Method Blank	106	88	95	95
MB 680-411284/9	Method Blank	93	86	92	97

Surrogate Legend

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

TestAmerica Savannah
MWD 12/3/15

QC Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

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

Lab Sample ID: MB 680-410673/9
Matrix: Water
Analysis Batch: 410673

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			11/17/15 10:35	1
Chlorobenzene	1.0	U	1.0		ug/L			11/17/15 10:35	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/17/15 10:35	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/17/15 10:35	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/17/15 10:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*70 - 130*		*11/17/15 10:35*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 130*		*11/17/15 10:35*	*1*
Dibromofluoromethane (Surr)	*93*		*70 - 130*		*11/17/15 10:35*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*11/17/15 10:35*	*1*

Lab Sample ID: LCS 680-410673/4
Matrix: Water
Analysis Batch: 410673

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	50.0		ug/L		100	73 - 131
Chlorobenzene	50.0	45.9		ug/L		92	80 - 120
1,2-Dichlorobenzene	50.0	48.1		ug/L		96	80 - 120
1,3-Dichlorobenzene	50.0	48.8		ug/L		98	80 - 120
1,4-Dichlorobenzene	50.0	47.4		ug/L		95	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*95*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*87*		*70 - 130*
Dibromofluoromethane (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: LCSD 680-410673/5
Matrix: Water
Analysis Batch: 410673

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	50.5		ug/L		101	73 - 131	1	30
Chlorobenzene	50.0	44.9		ug/L		90	80 - 120	2	20
1,2-Dichlorobenzene	50.0	49.0		ug/L		98	80 - 120	2	20
1,3-Dichlorobenzene	50.0	48.9		ug/L		98	80 - 120	0	20
1,4-Dichlorobenzene	50.0	49.4		ug/L		99	80 - 120	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*93*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 130*
Dibromofluoromethane (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*

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

Lab Sample ID: MB 680-411080/9
Matrix: Water
Analysis Batch: 411080

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			11/19/15 10:06	1
Chlorobenzene	1.0	U	1.0		ug/L			11/19/15 10:06	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/19/15 10:06	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/19/15 10:06	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/19/15 10:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*70 - 130*		*11/19/15 10:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 130*		*11/19/15 10:06*	*1*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*11/19/15 10:06*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*11/19/15 10:06*	*1*

Lab Sample ID: LCS 680-411080/4
Matrix: Water
Analysis Batch: 411080

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	52.1		ug/L		104	73 - 131
Chlorobenzene	50.0	51.9		ug/L		104	80 - 120
1,2-Dichlorobenzene	50.0	50.7		ug/L		101	80 - 120
1,3-Dichlorobenzene	50.0	50.5		ug/L		101	80 - 120
1,4-Dichlorobenzene	50.0	50.9		ug/L		102	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*114*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 130*
Dibromofluoromethane (Surr)	*108*		*70 - 130*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*

Lab Sample ID: LCSD 680-411080/5
Matrix: Water
Analysis Batch: 411080

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	51.5		ug/L		103	73 - 131	1	30
Chlorobenzene	50.0	52.0		ug/L		104	80 - 120	0	20
1,2-Dichlorobenzene	50.0	50.4		ug/L		101	80 - 120	1	20
1,3-Dichlorobenzene	50.0	51.0		ug/L		102	80 - 120	1	20
1,4-Dichlorobenzene	50.0	50.7		ug/L		101	80 - 120	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*112*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*
Dibromofluoromethane (Surr)	*104*		*70 - 130*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*

QC Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

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

Lab Sample ID: MB 680-411284/9
Matrix: Water
Analysis Batch: 411284

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			11/20/15 11:08	1
Chlorobenzene	1.0	U	1.0		ug/L			11/20/15 11:08	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/15 11:08	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/15 11:08	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/15 11:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*70 - 130*		*11/20/15 11:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 130*		*11/20/15 11:08*	*1*
Dibromofluoromethane (Surr)	*92*		*70 - 130*		*11/20/15 11:08*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*11/20/15 11:08*	*1*

Lab Sample ID: LCS 680-411284/4
Matrix: Water
Analysis Batch: 411284

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	48.1		ug/L		96	73 - 131
Chlorobenzene	50.0	45.1		ug/L		90	80 - 120
1,2-Dichlorobenzene	50.0	48.2		ug/L		96	80 - 120
1,3-Dichlorobenzene	50.0	48.5		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)	*95*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 130*
Dibromofluoromethane (Surr)	*94*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 680-411284/5
Matrix: Water
Analysis Batch: 411284

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	48.5		ug/L		97	73 - 131	1	30
Chlorobenzene	50.0	46.0		ug/L		92	80 - 120	2	20
1,2-Dichlorobenzene	50.0	49.4		ug/L		99	80 - 120	2	20
1,3-Dichlorobenzene	50.0	49.2		ug/L		98	80 - 120	1	20
1,4-Dichlorobenzene	50.0	48.6		ug/L		97	80 - 120	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*
Dibromofluoromethane (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

QC Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-410240/10
Matrix: Water
Analysis Batch: 410240

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			11/13/15 11:48	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 11:48	1
Methane	0.58	U	0.58		ug/L			11/13/15 11:48	1
Methane (TCD)	390	U	390		ug/L			11/13/15 11:48	1

Lab Sample ID: LCS 680-410240/3
Matrix: Water
Analysis Batch: 410240

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	291		ug/L		101	75 - 125
Ethylene	269	270		ug/L		100	75 - 125
Methane	154	145		ug/L		94	75 - 125

Lab Sample ID: LCS 680-410240/7
Matrix: Water
Analysis Batch: 410240

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	1740		ug/L		90	75 - 125

Lab Sample ID: LCSD 680-410240/4
Matrix: Water
Analysis Batch: 410240

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	253		ug/L		88	75 - 125	14	30
Ethylene	269	236		ug/L		88	75 - 125	14	30
Methane	154	127		ug/L		82	75 - 125	14	30

Lab Sample ID: LCSD 680-410240/8
Matrix: Water
Analysis Batch: 410240

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	1660		ug/L		86	75 - 125	5	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-410022/1-A
Matrix: Water
Analysis Batch: 410236

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 410022

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		11/12/15 08:37	11/12/15 22:51	1
Iron, Dissolved	0.050	U	0.050		mg/L		11/12/15 08:37	11/12/15 22:51	1
Manganese	0.010	U	0.010		mg/L		11/12/15 08:37	11/12/15 22:51	1
Manganese, Dissolved	0.010	U	0.010		mg/L		11/12/15 08:37	11/12/15 22:51	1

TestAmerica Savannah
MWD 12/3/15

QC Sample Results

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

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

Lab Sample ID: LCS 680-410022/2-A
Matrix: Water
Analysis Batch: 410236

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 410022

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.06		mg/L		101	80 - 120
Iron, Dissolved	5.00	5.06		mg/L		101	80 - 120
Manganese	0.500	0.515		mg/L		103	80 - 120
Manganese, Dissolved	0.500	0.515		mg/L		103	80 - 120

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-411279/5
Matrix: Water
Analysis Batch: 411279

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			11/19/15 17:27	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/19/15 17:27	1

Lab Sample ID: LCS 680-411279/6
Matrix: Water
Analysis Batch: 411279

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	248	239		mg/L		96	80 - 120

Lab Sample ID: LCSD 680-411279/32
Matrix: Water
Analysis Batch: 411279

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	248	274		mg/L		111	80 - 120	14	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-410962/49
Matrix: Water
Analysis Batch: 410962

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			11/17/15 10:17	1

Lab Sample ID: LCS 680-410962/19
Matrix: Water
Analysis Batch: 410962

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	26.0		mg/L		104	85 - 115

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AWD 12/3/15

Method: 325.2 - Chloride (Continued)

Lab Sample ID: LCSD 680-410962/41 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410962

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	25.0	26.2		mg/L		105	85 - 115	1	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-409760/13 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409760

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			11/10/15 12:35	1

Lab Sample ID: MB 680-409760/58 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409760

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			11/10/15 13:32	1

Lab Sample ID: LCS 680-409760/16 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409760

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.517		mg/L		103	75 - 125
Nitrate Nitrite as N	1.00	1.01		mg/L		101	90 - 110
Nitrite as N	0.500	0.493		mg/L		99	90 - 110

Lab Sample ID: LCS 680-409760/59 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 409760

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.497		mg/L		99	75 - 125
Nitrate Nitrite as N	1.00	0.996		mg/L		100	90 - 110
Nitrite as N	0.500	0.499		mg/L		100	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-410965/49 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410965

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			11/17/15 10:11	1

Method: 375.4 - Sulfate (Continued)

Lab Sample ID: LCS 680-410965/40 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410965

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	19.2		mg/L		96	75 - 125

Lab Sample ID: LCSD 680-410965/30 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410965

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	20.0	19.1		mg/L		95	75 - 125	0	30

Method: 415.1 - DOC

Lab Sample ID: MB 680-410972/50 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 410972

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			11/18/15 00:37	1

Lab Sample ID: LCS 680-410972/51 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 410972

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	16.0		mg/L		80	80 - 120

Method: 415.1 - TOC

Lab Sample ID: MB 680-410971/24 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410971

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			11/17/15 17:34	1

Lab Sample ID: LCS 680-410971/25 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410971

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.7		mg/L		99	80 - 120

Lab Sample ID: LLCS 680-410971/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410971

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.00	1.35		mg/L		135	50 - 150

QC Association Summary

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

GC/MS VOA

Analysis Batch: 410673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118812-9	4Q15 LTM Trip Blank #5	Total/NA	Water	8260B	
LCS 680-410673/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-410673/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-410673/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 411080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118812-3	CPA-MW-2D-1115	Total/NA	Water	8260B	
680-118812-5	CPA-MW-2D-1115-AD	Total/NA	Water	8260B	
680-118812-6	BSA-MW-1S-1115	Total/NA	Water	8260B	
LCS 680-411080/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-411080/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-411080/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 411284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118812-1	GWE-1D-1115	Total/NA	Water	8260B	
680-118812-8	BSA-MW-1S-1115-EB	Total/NA	Water	8260B	
LCS 680-411284/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-411284/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-411284/9	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 410240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118812-1	GWE-1D-1115	Total/NA	Water	RSK-175	
680-118812-3	CPA-MW-2D-1115	Total/NA	Water	RSK-175	
680-118812-6	BSA-MW-1S-1115	Total/NA	Water	RSK-175	
LCS 680-410240/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-410240/7	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-410240/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-410240/8	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-410240/10	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 410022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118812-1	GWE-1D-1115	Total Recoverable	Water	3005A	
680-118812-2	GWE-1D-F(0.2)-1115	Dissolved	Water	3005A	
680-118812-3	CPA-MW-2D-1115	Total Recoverable	Water	3005A	
680-118812-4	CPA-MW-2D-F(0-2)-1115	Dissolved	Water	3005A	
680-118812-6	BSA-MW-1S-1115	Total Recoverable	Water	3005A	
680-118812-7	BSA-MW-1S-F(0.2)-1115	Dissolved	Water	3005A	
LCS 680-410022/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-410022/1-A	Method Blank	Total Recoverable	Water	3005A	

TestAmerica Savannah
AWD 12/3/15

QC Association Summary

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Metals (Continued)

Analysis Batch: 410236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118812-1	GWE-1D-1115	Total Recoverable	Water	6010C	410022
680-118812-2	GWE-1D-F(0.2)-1115	Dissolved	Water	6010C	410022
680-118812-3	CPA-MW-2D-1115	Total Recoverable	Water	6010C	410022
680-118812-4	CPA-MW-2D-F(0-2)-1115	Dissolved	Water	6010C	410022
680-118812-6	BSA-MW-1S-1115	Total Recoverable	Water	6010C	410022
680-118812-7	BSA-MW-1S-F(0.2)-1115	Dissolved	Water	6010C	410022
LCS 680-410022/2-A	Lab Control Sample	Total Recoverable	Water	6010C	410022
MB 680-410022/1-A	Method Blank	Total Recoverable	Water	6010C	410022

General Chemistry

Analysis Batch: 409760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118812-1	GWE-1D-1115	Total/NA	Water	353.2	
680-118812-3	CPA-MW-2D-1115	Total/NA	Water	353.2	
680-118812-6	BSA-MW-1S-1115	Total/NA	Water	353.2	
LCS 680-409760/16	Lab Control Sample	Total/NA	Water	353.2	
LCS 680-409760/59	Lab Control Sample	Total/NA	Water	353.2	
MB 680-409760/13	Method Blank	Total/NA	Water	353.2	
MB 680-409760/58	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 410962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118812-1	GWE-1D-1115	Total/NA	Water	325.2	
680-118812-3	CPA-MW-2D-1115	Total/NA	Water	325.2	
680-118812-6	BSA-MW-1S-1115	Total/NA	Water	325.2	
LCS 680-410962/19	Lab Control Sample	Total/NA	Water	325.2	
LCSD 680-410962/41	Lab Control Sample Dup	Total/NA	Water	325.2	
MB 680-410962/49	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 410965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118812-1	GWE-1D-1115	Total/NA	Water	375.4	
680-118812-3	CPA-MW-2D-1115	Total/NA	Water	375.4	
680-118812-6	BSA-MW-1S-1115	Total/NA	Water	375.4	
LCS 680-410965/40	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-410965/30	Lab Control Sample Dup	Total/NA	Water	375.4	
MB 680-410965/49	Method Blank	Total/NA	Water	375.4	

Analysis Batch: 410971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118812-1	GWE-1D-1115	Total/NA	Water	415.1	
680-118812-3	CPA-MW-2D-1115	Total/NA	Water	415.1	
680-118812-6	BSA-MW-1S-1115	Total/NA	Water	415.1	
LCS 680-410971/25	Lab Control Sample	Total/NA	Water	415.1	
LLCS 680-410971/5	Lab Control Sample	Total/NA	Water	415.1	
MB 680-410971/24	Method Blank	Total/NA	Water	415.1	

TestAmerica Savannah
AWD 12/3/15

QC Association Summary

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

General Chemistry (Continued)

Analysis Batch: 410972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118812-2	GWE-1D-F(0.2)-1115	Dissolved	Water	415.1	
680-118812-4	CPA-MW-2D-F(0-2)-1115	Dissolved	Water	415.1	
680-118812-7	BSA-MW-1S-F(0.2)-1115	Dissolved	Water	415.1	
LCS 680-410972/51	Lab Control Sample	Dissolved	Water	415.1	
MB 680-410972/50	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 411279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118812-1	GWE-1D-1115	Total/NA	Water	310.1	
680-118812-3	CPA-MW-2D-1115	Total/NA	Water	310.1	
680-118812-6	BSA-MW-1S-1115	Total/NA	Water	310.1	
LCS 680-411279/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-411279/32	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-411279/5	Method Blank	Total/NA	Water	310.1	

TestAmerica Savannah
AWD 12/3/15

Lab Chronicle

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: GWE-1D-1115

Lab Sample ID: 680-118812-1
Date Collected: 11/09/15 13:15
Matrix: Water
Date Received: 11/10/15 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	411284	11/20/15 12:16	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	410240	11/13/15 14:26	SMC	TAL SAV
Total Recoverable	Prep	3005A			410022	11/12/15 08:37	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	410236	11/13/15 00:03	BWR	TAL SAV
Total/NA	Analysis	310.1		1	411279	11/19/15 17:54	DAM	TAL SAV
Total/NA	Analysis	325.2		2	410962	11/16/15 14:48	JME	TAL SAV
Total/NA	Analysis	353.2		1	409760	11/10/15 12:45	GRX	TAL SAV
Total/NA	Analysis	375.4		10	410965	11/16/15 14:54	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 22:29	KMB	TAL SAV

Client Sample ID: GWE-1D-F(0.2)-1115

Lab Sample ID: 680-118812-2
Date Collected: 11/09/15 13:15
Matrix: Water
Date Received: 11/10/15 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			410022	11/12/15 08:37	CRW	TAL SAV
Dissolved	Analysis	6010C		1	410236	11/13/15 00:07	BWR	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 05:55	KMB	TAL SAV

Client Sample ID: CPA-MW-2D-1115

Lab Sample ID: 680-118812-3
Date Collected: 11/09/15 15:22
Matrix: Water
Date Received: 11/10/15 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		500	411080	11/19/15 15:33	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	410240	11/13/15 14:41	SMC	TAL SAV
Total Recoverable	Prep	3005A			410022	11/12/15 08:37	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	410236	11/13/15 00:11	BWR	TAL SAV
Total/NA	Analysis	310.1		1	411279	11/19/15 18:04	DAM	TAL SAV
Total/NA	Analysis	325.2		2	410962	11/16/15 14:46	JME	TAL SAV
Total/NA	Analysis	353.2		1	409760	11/10/15 12:49	GRX	TAL SAV
Total/NA	Analysis	375.4		5	410965	11/16/15 15:04	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 22:41	KMB	TAL SAV

Client Sample ID: CPA-MW-2D-F(0-2)-1115

Lab Sample ID: 680-118812-4
Date Collected: 11/09/15 15:22
Matrix: Water
Date Received: 11/10/15 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			410022	11/12/15 08:37	CRW	TAL SAV
Dissolved	Analysis	6010C		1	410236	11/13/15 00:23	BWR	TAL SAV

TestAmerica Savannah
AWD 12/3/15

Lab Chronicle

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: CPA-MW-2D-F(0-2)-1115 — Lab Sample ID: 680-118812-4

Date Collected: 11/09/15 15:22 — **Matrix: Water**
Date Received: 11/10/15 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	410972	11/18/15 06:36	KMB	TAL SAV

Client Sample ID: CPA-MW-2D-1115-AD — Lab Sample ID: 680-118812-5

Date Collected: 11/09/15 15:22 — **Matrix: Water**
Date Received: 11/10/15 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	411080	11/19/15 15:53	CEJ	TAL SAV

Client Sample ID: BSA-MW-1S-1115 — Lab Sample ID: 680-118812-6

Date Collected: 11/09/15 16:32 — **Matrix: Water**
Date Received: 11/10/15 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10000	411080	11/19/15 14:52	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	410240	11/13/15 14:55	SMC	TAL SAV
Total Recoverable	Prep	3005A			410022	11/12/15 08:37	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	410236	11/13/15 00:26	BWR	TAL SAV
Total/NA	Analysis	310.1		1	411279	11/19/15 18:19	DAM	TAL SAV
Total/NA	Analysis	325.2		5	410962	11/16/15 15:29	JME	TAL SAV
Total/NA	Analysis	353.2		1	409760	11/10/15 12:50	GRX	TAL SAV
Total/NA	Analysis	375.4		2	410965	11/16/15 15:04	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 22:55	KMB	TAL SAV

Client Sample ID: BSA-MW-1S-F(0.2)-1115 — Lab Sample ID: 680-118812-7

Date Collected: 11/09/15 16:32 — **Matrix: Water**
Date Received: 11/10/15 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			410022	11/12/15 08:37	CRW	TAL SAV
Dissolved	Analysis	6010C		1	410236	11/13/15 00:30	BWR	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 06:49	KMB	TAL SAV

Client Sample ID: BSA-MW-1S-1115-EB — Lab Sample ID: 680-118812-8

Date Collected: 11/09/15 17:30 — **Matrix: Water**
Date Received: 11/10/15 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	411284	11/20/15 13:24	CEJ	TAL SAV

TestAmerica Savannah
AWD 12/3/15

Lab Chronicle

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

Client Sample ID: 4Q15 LTM Trip Blank #5

Lab Sample ID: 680-118812-9

Date Collected: 11/09/15 00:00
Matrix: Water
Date Received: 11/10/15 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	410673	11/17/15 17:45	CEJ	TAL SAV

Laboratory References:

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

TestAmerica Savannah
12/3/15 AWD

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912 354 7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Eric Bindner~~	Date: 11/7/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler: Emily White
St. Charles, MO 63301	☑ CALENDAR 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: 3Q15 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	SVOCs by 8270	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
GWE-1D-1115	11/9/15	1315	G	W	14	N		3		1	1	1	3	2	3			
GWE-1D-F(0.2)-1115		1315			4	Y										1	3	
CPA-MW-2D-1115		1522			14	N		3		1	1	1	3	2	3			
CPA-MW-2D-F(0.2)-1115		1522			4	Y										1	3	
CPA-MW-2D-1115-AD		1522			3	N		3										
BSA-MW-1S-1115		1632			14	N		3		1	1	1	3	2	3			
BSA-MW-1S-F(0.2)-1115		1632			4	Y										1	3	
BSA-MW-1S-1115-EB		1730			3	N		3										
4Q15 LTM Trip Blank #5					2	N		2										

680-118812 Chain of Custody

Page 3 of 35

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

9:30 1-2/1.6 CF

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 505672	Cooler Temp. (°C) Obs'd: _____ Corr'd: _____ Therm ID No.: _____			
Relinquished by: Emily White	Company: Golder	Date/Time: 11/9/15 1830	Received by: [signature]	Company: A	Date/Time: 11-10-15
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time:
Relinquished by:	Company	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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

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Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-118812-1
SDG Number: KPS156

Login Number: 118812
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?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	

AWD 12/3/15

Certification Summary

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

TestAmerica Job ID: 680-118812-1
SDG: KPS156

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	06-30-16
Arkansas DEQ	State Program	6	88-0692	01-31-16 *
California	State Program	9	2939	07-31-16
Colorado	State Program	8	N/A	12-31-15 *
Connecticut	State Program	1	PH-0161	03-31-17
Florida	NELAP	4	E87052	06-30-16
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	803	06-30-16
Guam	State Program	9	14-004r	04-16-16
Hawaii	State Program	9	N/A	06-30-16
Illinois	NELAP	5	200022	11-30-15 *
Indiana	State Program	5	N/A	06-30-16
Iowa	State Program	7	353	06-30-17
Kentucky (DW)	State Program	4	90084	12-31-15 *
Kentucky (UST)	State Program	4	18	06-30-16
Kentucky (WW)	State Program	4	90084	12-31-15 *
Louisiana	NELAP	6	30690	06-30-16
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	06-30-16
Michigan	State Program	5	9925	03-05-16
Mississippi	State Program	4	N/A	06-30-15 *
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-16
New Jersey	NELAP	2	GA769	06-30-16
New Mexico	State Program	6	N/A	06-30-16
New York	NELAP	2	10842	03-31-16
North Carolina (DW)	State Program	4	13701	07-31-16
North Carolina (WW/SW)	State Program	4	269	12-31-15 *
Oklahoma	State Program	6	9984	08-31-16
Pennsylvania	NELAP	3	68-00474	06-30-16
Puerto Rico	State Program	2	GA00006	12-31-15 *
South Carolina	State Program	4	98001	06-30-16
Tennessee	State Program	4	TN02961	06-30-16
Texas	NELAP	6	T104704185-14-7	11-30-16
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-16
Washington	State Program	10	C805	06-10-16
West Virginia (DW)	State Program	3	9950C	12-31-15 *
West Virginia DEP	State Program	3	094	06-30-16
Wisconsin	State Program	5	999819810	08-31-16
Wyoming	State Program	8	8TMS-L	06-30-16

* Certification renewal pending - certification considered valid.

TestAmerica Savannah
12/3/15 AWD

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
4Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-4Q15 LTM
Reviewer: A. Derhake
Laboratory: TestAmerica
SDG#: KPS157
Matrix: Water

Project Manager: A. Derhake
Project Number: 140-3345
Sample Date: November 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-1115, GWE-2D-F(0.2)-1115, 4Q15 LTM Trip Blank #6

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

Comments:

VOC: Insufficient sample volume to perform MS/MSD for analytical batch 410872.

Dissolved Gases: No deficiencies noted.

Metals: Iron, dissolved exceeded the recovery criteria low for the MSD of sample GWE-2D-F(0.2)-1115MSD in batch 410501.

Alkalinity: No deficiencies noted.

Chloride: Sample GWE-2D-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Sample GWE-2D-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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

Comments: Samples were received at 2.4°C, within the 4°C +/- 2°C criteria.

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

Comments: None

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: None

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

Comments: Iron, dissolved exceeded the recovery criteria low for the MSD sample associated with batch 410501. Data was qualified on MS/MSD alone.

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

Comments: None

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

Comments: None

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

Comments: None.

Additional Comments: None

Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Chloride and Sulfate	D	GWE-2D

SDG KPS157

Sample Results from:

GWE-2D

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 680-118878-1
TestAmerica Sample Delivery Group: KPS157
Client Project/Site: 4Q15 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:
12/1/2015 4:37:59 PM

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

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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

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

Results relate only to the items tested and the sample(s) as received by the laboratory. AMD 12/3/15

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AMP
12/3/15

Job ID: 680-118878-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 4Q15 LTM GW Sampling - 1403345

Report Number: 680-118878-1

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

RECEIPT
The samples were received on 11/11/2015 11:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples GWE-2D-1115 (680-118878-1) and 4Q15 LTM Trip Blank #6 (680-118878-3) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/18/2015 and 11/19/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-410872.

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

DISSOLVED GASES
Sample GWE-2D-1115 (680-118878-1) was analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 11/13/2015.

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

METALS (ICP)
Sample GWE-2D-F(0.2)-1115 (680-118878-2) was analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared and analyzed on 11/14/2015.

Iron, Dissolved exceeded the recovery criteria low for the MSD of sample GWE-2D-F(0.2)-1115MSD (680-118878-2) in batch 680-410501.

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

METALS (ICP)
Sample GWE-2D-1115 (680-118878-1) was analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared and analyzed on 11/16/2015.

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

ALKALINITY
Sample GWE-2D-1115 (680-118878-1) was analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 11/19/2015.

TestAmerica Savannah
12/3/15

Job ID: 680-118878-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

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

CHLORIDE
Sample GWE-2D-1115 (680-118878-1) was analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 11/16/2015.

Sample GWE-2D-1115 (680-118878-1)[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
Sample GWE-2D-1115 (680-118878-1) was analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 11/11/2015.

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

SULFATE
Sample GWE-2D-1115 (680-118878-1) was analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 11/16/2015.

Sample GWE-2D-1115 (680-118878-1)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL ORGANIC CARBON
Sample GWE-2D-1115 (680-118878-1) was analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 11/17/2015.

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

DISSOLVED ORGANIC CARBON (DOC)
Sample GWE-2D-F(0.2)-1115 (680-118878-2) was analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 11/18/2015.

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: 4Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-118878-1
SDG: KPS157

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-118878-1	GWE-2D-1115	Water	11/10/15 11:28	11/11/15 11:55
680-118878-2	GWE-2D-F(0.2)-1115	Water	11/10/15 11:28	11/11/15 11:55
680-118878-3	4Q15 LTM Trip Blank #6	Water	11/10/15 00:00	11/11/15 11:55

TestAmerica Savannah
MWD 12/31/15

Method Summary

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

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 SAV
415.1	DOC	MCAWW	TAL SAV

Protocol References:

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

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

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

Laboratory References:

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

TestAmerica Savannah
DWD 12/3/15

Definitions/Glossary

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

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
F1	MS and/or MSD Recovery is outside acceptance limits.
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: 4Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-118878-1
SDG: KPS157

Client Sample ID: GWE-2D-1115 — Lab Sample ID: 680-118878-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	60		1.0		ug/L	1		8260B	Total/NA
Methane	80		0.58		ug/L	1		RSK-175	Total/NA
Iron	19		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.46		0.010		mg/L	1		6010C	Total Recoverable
Chloride	670	D	20		mg/L	20		325.2	Total/NA
Sulfate	770	D	250		mg/L	50		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	400		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	24		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-2D-F(0.2)-1115 — Lab Sample ID: 680-118878-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	19	~~F1~~	0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.47		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.4		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: 4Q15 LTM Trip Blank #6 — Lab Sample ID: 680-118878-3

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah
MMP 12/3/15

Client Sample Results

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

Client Sample ID: GWE-2D-1115

Lab Sample ID: 680-118878-1
Matrix: Water

Date Collected: 11/10/15 11:28
Date Received: 11/11/15 11:55

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			11/19/15 11:23	1
Chlorobenzene	**60**		1.0		ug/L			11/19/15 11:23	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/19/15 11:23	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/19/15 11:23	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/19/15 11:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*11/19/15 11:23*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 130*		*11/19/15 11:23*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*11/19/15 11:23*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*11/19/15 11:23*	*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			11/13/15 15:10	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 15:10	1
Methane	**80**		0.58		ug/L			11/13/15 15:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**19**		0.050		mg/L		11/16/15 09:45	11/16/15 22:01	1
Manganese	**0.46**		0.010		mg/L		11/16/15 09:45	11/16/15 22:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**670**	D	20		mg/L			11/16/15 15:29	20
Nitrate as N	0.050	U	0.050		mg/L			11/11/15 17:05	1
Sulfate	**770**	D	250		mg/L			11/16/15 15:27	50
Total Organic Carbon	**4.3**		1.0		mg/L			11/17/15 23:26	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**400**		5.0		mg/L			11/19/15 18:29	1
Carbon Dioxide, Free	**24**		5.0		mg/L			11/19/15 18:29	1

TestAmerica Savannah

MMD 12/3/15

Client Sample Results

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

Client Sample ID: GWE-2D-F(0.2)-1115

Lab Sample ID: 680-118878-2
Matrix: Water

Date Collected: 11/10/15 11:28
Date Received: 11/11/15 11:55

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	19	F1	0.050		mg/L		11/14/15 10:13	11/14/15 19:54	1
Manganese, Dissolved	0.47		0.010		mg/L		11/14/15 10:13	11/14/15 19:54	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.4		1.0		mg/L			11/18/15 07:32	1

TestAmerica Savannah

MWD 12/3/15

Client Sample Results

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

Client Sample ID: 4Q15 LTM Trip Blank #6

Lab Sample ID: 680-118878-3
Matrix: Water

Date Collected: 11/10/15 00:00
Date Received: 11/11/15 11:55

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			11/18/15 12:49	1
Chlorobenzene	1.0	U	1.0		ug/L			11/18/15 12:49	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/18/15 12:49	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/18/15 12:49	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/18/15 12:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*11/18/15 12:49*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 130*		*11/18/15 12:49*	*1*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*11/18/15 12:49*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*11/18/15 12:49*	*1*

Surrogate Summary

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

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)
680-118878-1	GWE-2D-1115	96	91	99	97
680-118878-3	4Q15 LTM Trip Blank #6	96	89	95	98
LCS 680-410872/4	Lab Control Sample	96	88	96	98
LCS 680-411078/4	Lab Control Sample	95	92	99	98
LCSD 680-410872/5	Lab Control Sample Dup	97	86	95	99
LCSD 680-411078/5	Lab Control Sample Dup	96	97	102	102
MB 680-410872/9	Method Blank	95	89	95	96
MB 680-411078/9	Method Blank	94	86	94	97

Surrogate Legend

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

TestAmerica Savannah
RMD 12/3/15

QC Sample Results

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

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

Lab Sample ID: MB 680-410872/9
Matrix: Water
Analysis Batch: 410872

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			11/18/15 11:02	1
Chlorobenzene	1.0	U	1.0		ug/L			11/18/15 11:02	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/18/15 11:02	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/18/15 11:02	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/18/15 11:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*70 - 130*		*11/18/15 11:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 130*		*11/18/15 11:02*	*1*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*11/18/15 11:02*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*11/18/15 11:02*	*1*

Lab Sample ID: LCS 680-410872/4
Matrix: Water
Analysis Batch: 410872

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	49.3		ug/L		99	73 - 131
Chlorobenzene	50.0	46.9		ug/L		94	80 - 120
1,2-Dichlorobenzene	50.0	47.4		ug/L		95	80 - 120
1,3-Dichlorobenzene	50.0	48.9		ug/L		98	80 - 120
1,4-Dichlorobenzene	50.0	47.8		ug/L		96	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 130*
Dibromofluoromethane (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: LCSD 680-410872/5
Matrix: Water
Analysis Batch: 410872

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	50.7		ug/L		101	73 - 131	3	30
Chlorobenzene	50.0	46.8		ug/L		94	80 - 120	0	20
1,2-Dichlorobenzene	50.0	48.0		ug/L		96	80 - 120	1	20
1,3-Dichlorobenzene	50.0	49.1		ug/L		98	80 - 120	0	20
1,4-Dichlorobenzene	50.0	47.5		ug/L		95	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 130*
Dibromofluoromethane (Surr)	*95*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

TestAmerica Savannah

12/3/15

QC Sample Results

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

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

Lab Sample ID: MB 680-411078/9
Matrix: Water
Analysis Batch: 411078

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			11/19/15 10:19	1
Chlorobenzene	1.0	U	1.0		ug/L			11/19/15 10:19	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/19/15 10:19	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/19/15 10:19	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/19/15 10:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*70 - 130*		*11/19/15 10:19*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 130*		*11/19/15 10:19*	*1*
Dibromofluoromethane (Surr)	*94*		*70 - 130*		*11/19/15 10:19*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*11/19/15 10:19*	*1*

Lab Sample ID: LCS 680-411078/4
Matrix: Water
Analysis Batch: 411078

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	46.1		ug/L		92	80 - 120
1,2-Dichlorobenzene	50.0	47.7		ug/L		95	80 - 120
1,3-Dichlorobenzene	50.0	48.4		ug/L		97	80 - 120
1,4-Dichlorobenzene	50.0	48.8		ug/L		98	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*95*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: LCSD 680-411078/5
Matrix: Water
Analysis Batch: 411078

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	50.6		ug/L		101	73 - 131	0	30
Chlorobenzene	50.0	47.2		ug/L		94	80 - 120	2	20
1,2-Dichlorobenzene	50.0	48.7		ug/L		97	80 - 120	2	20
1,3-Dichlorobenzene	50.0	48.9		ug/L		98	80 - 120	1	20
1,4-Dichlorobenzene	50.0	48.6		ug/L		97	80 - 120	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*
Dibromofluoromethane (Surr)	*102*		*70 - 130*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*

QC Sample Results

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-410240/10
Matrix: Water
Analysis Batch: 410240

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			11/13/15 11:48	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 11:48	1
Methane	0.58	U	0.58		ug/L			11/13/15 11:48	1

Lab Sample ID: LCS 680-410240/3
Matrix: Water
Analysis Batch: 410240

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	291		ug/L		101	75 - 125
Ethylene	269	270		ug/L		100	75 - 125
Methane	154	145		ug/L		94	75 - 125

Lab Sample ID: LCSD 680-410240/4
Matrix: Water
Analysis Batch: 410240

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	253		ug/L		88	75 - 125	14	30
Ethylene	269	236		ug/L		88	75 - 125	14	30
Methane	154	127		ug/L		82	75 - 125	14	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-410412/1-A
Matrix: Water
Analysis Batch: 410501

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 410412

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.050	U	0.050		mg/L		11/14/15 10:13	11/14/15 19:46	1
Manganese, Dissolved	0.010	U	0.010		mg/L		11/14/15 10:13	11/14/15 19:46	1

Lab Sample ID: LCS 680-410412/2-A
Matrix: Water
Analysis Batch: 410501

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 410412

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	5.00	4.83		mg/L		97	80 - 120
Manganese, Dissolved	0.500	0.491		mg/L		98	80 - 120

Lab Sample ID: MB 680-410503/1-A
Matrix: Water
Analysis Batch: 410766

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 410503

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		11/16/15 09:45	11/16/15 20:26	1
Manganese	0.010	U	0.010		mg/L		11/16/15 09:45	11/16/15 20:26	1

MMP 12/3/15

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

Lab Sample ID: LCS 680-410503/2-A
Matrix: Water
Analysis Batch: 410766

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 410503

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	4.93		mg/L		99	80 - 120
Manganese	0.500	0.502		mg/L		100	80 - 120

Lab Sample ID: 680-118878-2 MS
Matrix: Water
Analysis Batch: 410501

Client Sample ID: GWE-2D-F(0.2)-1115
Prep Type: Dissolved
Prep Batch: 410412

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	19	F1	5.00	23.1		mg/L		75	75 - 125
Manganese, Dissolved	0.47		0.500	0.959		mg/L		98	75 - 125

Lab Sample ID: 680-118878-2 MSD
Matrix: Water
Analysis Batch: 410501

Client Sample ID: GWE-2D-F(0.2)-1115
Prep Type: Dissolved
Prep Batch: 410412

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron, Dissolved	19	F1	5.00	22.8	F1	mg/L		68	75 - 125	2	20
Manganese, Dissolved	0.47		0.500	0.946		mg/L		95	75 - 125	1	20

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-411279/5
Matrix: Water
Analysis Batch: 411279

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			11/19/15 17:27	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/19/15 17:27	1

Lab Sample ID: LCS 680-411279/6
Matrix: Water
Analysis Batch: 411279

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	248	239		mg/L		96	80 - 120

Lab Sample ID: LCSD 680-411279/32
Matrix: Water
Analysis Batch: 411279

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	248	274		mg/L		111	80 - 120	14	30

QC Sample Results

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

Method: 325.2 - Chloride

Lab Sample ID: MB 680-410962/49
Matrix: Water
Analysis Batch: 410962

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			11/17/15 10:17	1

Lab Sample ID: LCS 680-410962/19
Matrix: Water
Analysis Batch: 410962

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	26.0		mg/L		104	85 - 115

Lab Sample ID: LCSD 680-410962/41
Matrix: Water
Analysis Batch: 410962

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	25.0	26.2		mg/L		105	85 - 115	1	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-409992/13
Matrix: Water
Analysis Batch: 409992

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			11/11/15 16:45	1

Lab Sample ID: MB 680-409992/31
Matrix: Water
Analysis Batch: 409992

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			11/11/15 17:06	1

Lab Sample ID: LCS 680-409992/16
Matrix: Water
Analysis Batch: 409992

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	0.510		mg/L		102	75 - 125
Nitrate Nitrite as N	1.00	1.00		mg/L		100	90 - 110
Nitrite as N	0.500	0.490		mg/L		98	90 - 110

Lab Sample ID: LCS 680-409992/32
Matrix: Water
Analysis Batch: 409992

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	0.483		mg/L		97	75 - 125
Nitrate Nitrite as N	1.00	1.00		mg/L		100	90 - 110
Nitrite as N	0.500	0.517		mg/L		103	90 - 110

QC Sample Results

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-410965/49
Matrix: Water
Analysis Batch: 410965

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			11/17/15 10:11	1

Lab Sample ID: LCS 680-410965/40
Matrix: Water
Analysis Batch: 410965

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	19.2		mg/L		96	75 - 125

Lab Sample ID: LCSD 680-410965/30
Matrix: Water
Analysis Batch: 410965

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	19.1		mg/L		95	75 - 125	0	30

Method: 415.1 - DOC

Lab Sample ID: MB 680-410972/78
Matrix: Water
Analysis Batch: 410972

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			11/18/15 07:06	1

Lab Sample ID: LCS 680-410972/79
Matrix: Water
Analysis Batch: 410972

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	19.6		mg/L		98	80 - 120

Method: 415.1 - TOC

Lab Sample ID: MB 680-410971/24
Matrix: Water
Analysis Batch: 410971

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			11/17/15 17:34	1

Lab Sample ID: LCS 680-410971/25
Matrix: Water
Analysis Batch: 410971

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.7		mg/L		99	80 - 120

MMD 12/3/15

QC Sample Results

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

Method: 415.1 - TOC (Continued)

Lab Sample ID: LLCS 680-410971/5
Matrix: Water
Analysis Batch: 410971

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.00	1.35		mg/L		135	50 - 150

TestAmerica Savannah
MMD 12/3/15

QC Association Summary

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

GC/MS VOA

Analysis Batch: 410872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-3	4Q15 LTM Trip Blank #6	Total/NA	Water	8260B	
LCS 680-410872/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-410872/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-410872/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 411078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-1	GWE-2D-1115	Total/NA	Water	8260B	
LCS 680-411078/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-411078/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-411078/9	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 410240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-1	GWE-2D-1115	Total/NA	Water	RSK-175	
LCS 680-410240/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-410240/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-410240/10	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 410412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-2	GWE-2D-F(0.2)-1115	Dissolved	Water	3005A	
680-118878-2 MS	GWE-2D-F(0.2)-1115	Dissolved	Water	3005A	
680-118878-2 MSD	GWE-2D-F(0.2)-1115	Dissolved	Water	3005A	
LCS 680-410412/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-410412/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 410501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-2	GWE-2D-F(0.2)-1115	Dissolved	Water	6010C	410412
680-118878-2 MS	GWE-2D-F(0.2)-1115	Dissolved	Water	6010C	410412
680-118878-2 MSD	GWE-2D-F(0.2)-1115	Dissolved	Water	6010C	410412
LCS 680-410412/2-A	Lab Control Sample	Total Recoverable	Water	6010C	410412
MB 680-410412/1-A	Method Blank	Total Recoverable	Water	6010C	410412

Prep Batch: 410503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-1	GWE-2D-1115	Total Recoverable	Water	3005A	
LCS 680-410503/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-410503/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 410766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-1	GWE-2D-1115	Total Recoverable	Water	6010C	410503
LCS 680-410503/2-A	Lab Control Sample	Total Recoverable	Water	6010C	410503
MB 680-410503/1-A	Method Blank	Total Recoverable	Water	6010C	410503

TestAmerica Savannah

MMD 12/3/15

QC Association Summary

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

General Chemistry

Analysis Batch: 409992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-1	GWE-2D-1115	Total/NA	Water	353.2	
LCS 680-409992/16	Lab Control Sample	Total/NA	Water	353.2	
LCS 680-409992/32	Lab Control Sample	Total/NA	Water	353.2	
MB 680-409992/13	Method Blank	Total/NA	Water	353.2	
MB 680-409992/31	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 410962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-1	GWE-2D-1115	Total/NA	Water	325.2	
LCS 680-410962/19	Lab Control Sample	Total/NA	Water	325.2	
LCSD 680-410962/41	Lab Control Sample Dup	Total/NA	Water	325.2	
MB 680-410962/49	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 410965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-1	GWE-2D-1115	Total/NA	Water	375.4	
LCS 680-410965/40	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-410965/30	Lab Control Sample Dup	Total/NA	Water	375.4	
MB 680-410965/49	Method Blank	Total/NA	Water	375.4	

Analysis Batch: 410971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-1	GWE-2D-1115	Total/NA	Water	415.1	
LCS 680-410971/25	Lab Control Sample	Total/NA	Water	415.1	
LLCS 680-410971/5	Lab Control Sample	Total/NA	Water	415.1	
MB 680-410971/24	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 410972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-2	GWE-2D-F(0.2)-1115	Dissolved	Water	415.1	
LCS 680-410972/79	Lab Control Sample	Dissolved	Water	415.1	
MB 680-410972/78	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 411279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118878-1	GWE-2D-1115	Total/NA	Water	310.1	
LCS 680-411279/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-411279/32	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-411279/5	Method Blank	Total/NA	Water	310.1	

Lab Chronicle

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

Client Sample ID: GWE-2D-1115

Lab Sample ID: 680-118878-1
Matrix: Water

Date Collected: 11/10/15 11:28
Date Received: 11/11/15 11:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	411078	11/19/15 11:23	CEJ	TAL SAV
Total/NA	Analysis	RSK-175		1	410240	11/13/15 15:10	SMC	TAL SAV
Total Recoverable	Prep	3005A			410503	11/16/15 09:45	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	410766	11/16/15 22:01	BCB	TAL SAV
Total/NA	Analysis	310.1		1	411279	11/19/15 18:29	DAM	TAL SAV
Total/NA	Analysis	325.2		20	410962	11/16/15 15:29	JME	TAL SAV
Total/NA	Analysis	353.2		1	409992	11/11/15 17:05	GRX	TAL SAV
Total/NA	Analysis	375.4		50	410965	11/16/15 15:27	JME	TAL SAV
Total/NA	Analysis	415.1		1	410971	11/17/15 23:26	KMB	TAL SAV

Client Sample ID: GWE-2D-F(0.2)-1115

Lab Sample ID: 680-118878-2
Matrix: Water

Date Collected: 11/10/15 11:28
Date Received: 11/11/15 11:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			410412	11/14/15 10:13	BJB	TAL SAV
Dissolved	Analysis	6010C		1	410501	11/14/15 19:54	BJB	TAL SAV
Dissolved	Analysis	415.1		1	410972	11/18/15 07:32	KMB	TAL SAV

Client Sample ID: 4Q15 LTM Trip Blank #6

Lab Sample ID: 680-118878-3
Matrix: Water

Date Collected: 11/10/15 00:00
Date Received: 11/11/15 11:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	410872	11/18/15 12:49	CEJ	TAL SAV

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

TestAmerica Savannah
12/3/15

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: Emily White

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Riedner~~	Date: 11/10/15	COC No:
Golder Associates Inc	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler: E. White
St. Charles, MO 63301	☑ CALENDAR 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: 4Q15 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	SVOCs by 8270	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
GWE-2D-1115	11/10/15	1128	G	W	14			3		1	1	1	3	2	3			
GWE-2D-F(0.2)-1115	↓	1128	↓	↓	4											1	3	
4Q15 LTM Trip Blank #6	—	—	—	—	2													
								2	4	4	1	1	2	3	3	1	3	

680-118878 Chain of Custody

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

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

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

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

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

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

680-118878 20(CF)2.4°C

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 799880 | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder	11/10/15 1800			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
				TASAV	11-11-15 1155

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

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-118878-1
SDG Number: KPS157

List Source: TestAmerica Savannah

Login Number: 118878
List Number: 1
Creator: Banda, Christy S

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	

AMM 12/3/15

Certification Summary

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

TestAmerica Job ID: 680-118878-1
SDG: KPS157

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	06-30-16
Arkansas DEQ	State Program	6	88-0692	01-31-16 *
California	State Program	9	2939	07-31-16
Colorado	State Program	8	N/A	12-31-15 *
Connecticut	State Program	1	PH-0161	03-31-17
Florida	NELAP	4	E87052	06-30-16
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	803	06-30-16
Guam	State Program	9	14-004r	04-16-16
Hawaii	State Program	9	N/A	06-30-16
Illinois	NELAP	5	200022	11-30-15 *
Indiana	State Program	5	N/A	06-30-16
Iowa	State Program	7	353	06-30-17
Kentucky (DW)	State Program	4	90084	12-31-15 *
Kentucky (UST)	State Program	4	18	06-30-16
Kentucky (WW)	State Program	4	90084	12-31-15 *
Louisiana	NELAP	6	30690	06-30-16
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	06-30-16
Michigan	State Program	5	9925	03-05-16
Mississippi	State Program	4	N/A	06-30-15 *
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-16
New Jersey	NELAP	2	GA769	06-30-16
New Mexico	State Program	6	N/A	06-30-16
New York	NELAP	2	10842	03-31-16
North Carolina (DW)	State Program	4	13701	07-31-16
North Carolina (WW/SW)	State Program	4	269	12-31-15 *
Oklahoma	State Program	6	9984	08-31-16
Pennsylvania	NELAP	3	68-00474	06-30-16
Puerto Rico	State Program	2	GA00006	12-31-15 *
South Carolina	State Program	4	98001	06-30-15 *
Tennessee	State Program	4	TN02961	06-30-16
Texas	NELAP	6	T104704185-14-7	11-30-16
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-16
Washington	State Program	10	C805	06-10-16
West Virginia (DW)	State Program	3	9950C	12-31-15 *
West Virginia DEP	State Program	3	094	06-30-16
Wisconsin	State Program	5	999819810	08-31-16
Wyoming	State Program	8	8TMS-L	06-30-16

* Certification renewal pending - certification considered valid.

TestAmerica Savannah

AMB 1/13/15

APPENDIX E
MICROBIAL INSIGHTS DATA PACKAGE

10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

Client: Amanda Derhake
Golder Associates Inc.
820 S. Main Street
Suite 100
St. Charles, MO 63301

Phone: 636-724-9191

Fax: 636-724-9393

Identifier: 111MJ **Date Rec:** 10/31/2015 **Report Date:** 12/03/2015

Client Project #: 140-3345 **Client Project Name:** WG Krummrich

Purchase Order #:

Analysis Requested: PLFA, Stable Isotope Probing, Standard Bio-Trap

Reviewed By:

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

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

MI Project Number: **111MJ**
Date Received: 10/31/2015

Sample Information

Sample Name:	**BSA-MW-1S-1115**	**BSA-MW-2D-1115**	**BSA-MW-3D-1115**	**BSA-MW-4D-1115**	**BSA-MW-5D-1115**
Sample Date:	10/29/2015	10/29/2015	10/29/2015	10/29/2015	10/29/2015
Sample Matrix:	Std. Bio-Trap	Adv. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap
Analyst:	JS	JS	JS	JS	JS

Biomass Concentrations

Total Biomass (cells/bead)	**2.63E+05**	**1.35E+06**	**1.69E+04**	**1.99E+04**	**2.27E+05**

Community Structure (% total PLFA)

Firmicutes (TerBrSats)	**2.53**	**60.79**	**0.00**	**0.00**	**1.28**
Proteobacteria (Monos)	**75.45**	**27.25**	**88.84**	**67.00**	**50.94**
Anaerobic metal reducers (BrMonos)	**0.00**	**0.97**	**0.00**	**0.00**	**0.00**
SRB/Actinomycetes (MidBrSats)	**0.00**	**0.97**	**0.00**	**0.00**	**0.00**
General (Nsats)	**22.03**	**9.61**	**11.16**	**33.00**	**25.63**
Eukaryotes (polyenoics)	**0.00**	**1.40**	**0.00**	**0.00**	**22.16**

Physiological Status (Proteobacteria only)

Slowed Growth	**0.58**	**0.12**	**0.00**	**0.00**	**0.00**
Decreased Permeability	**2.31**	**0.06**	**0.00**	**0.00**	**0.00**

Legend:
NA = Not Analyzed NS = Not Sampled

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PLFA

Client: **Golder Associates Inc.**
Project: WG Krummrich

MI Project Number: **111MJ**
Date Received: 10/31/2015

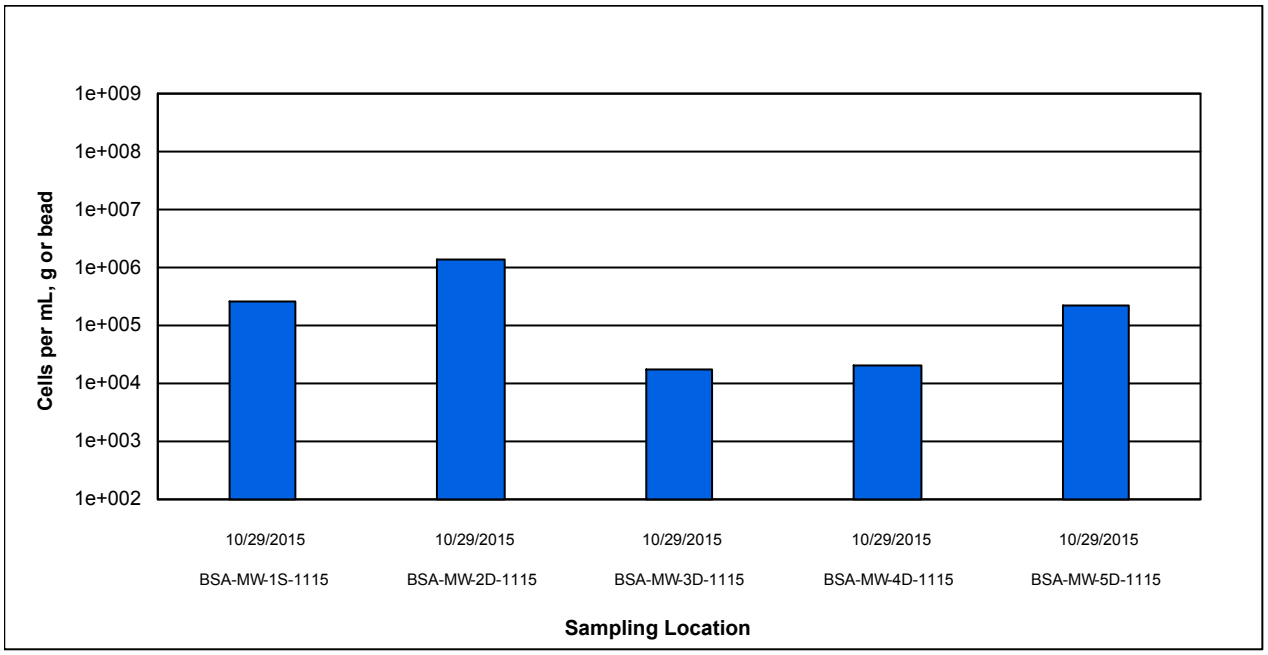

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

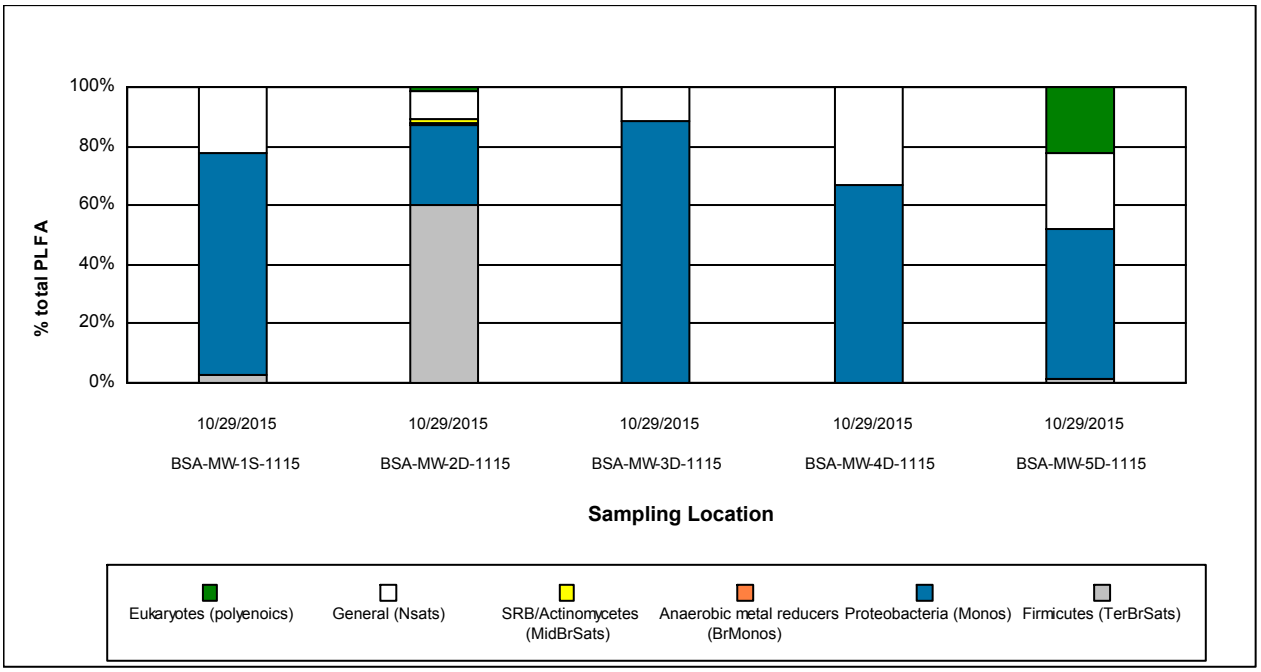

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

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Client: **Golder Associates Inc.**
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MI Project Number: **111MJ**
Date Received: 10/31/2015

Sample Information

Sample Name:	**CPA-MW-1D-1115**	**CPA-MW-2D-1115**	**CPA-MW-3D-1115**	**CPA-MW-4D-1115**	**CPA-MW-5D-1115**
Sample Date:	10/29/2015	10/29/2015	10/29/2015	10/29/2015	10/29/2015
Sample Matrix:	Std. Bio-Trap	Std. Bio-Trap	Adv. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap
Analyst:	JS	JS	JS	JS	JS

Biomass Concentrations

Total Biomass (cells/bead)	**4.74E+04**	**<1.67E+04**	**3.34E+04**	**<1.66E+04**	**<1.67E+04**

Community Structure (% total PLFA)

Firmicutes (TerBrSats)	**11.03**	**0.00**	**0.00**	**0.00**	**0.00**
Proteobacteria (Monos)	**67.22**	**0.00**	**72.51**	**0.00**	**0.00**
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)	**21.74**	**0.00**	**27.49**	**0.00**	**0.00**
Eukaryotes (polyenoics)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Physiological Status (Proteobacteria only)

Slowed Growth	**0.58**	**0.00**	**0.00**	**0.00**	**0.00**
Decreased Permeability	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Legend:
NA = Not Analyzed NS = Not Sampled

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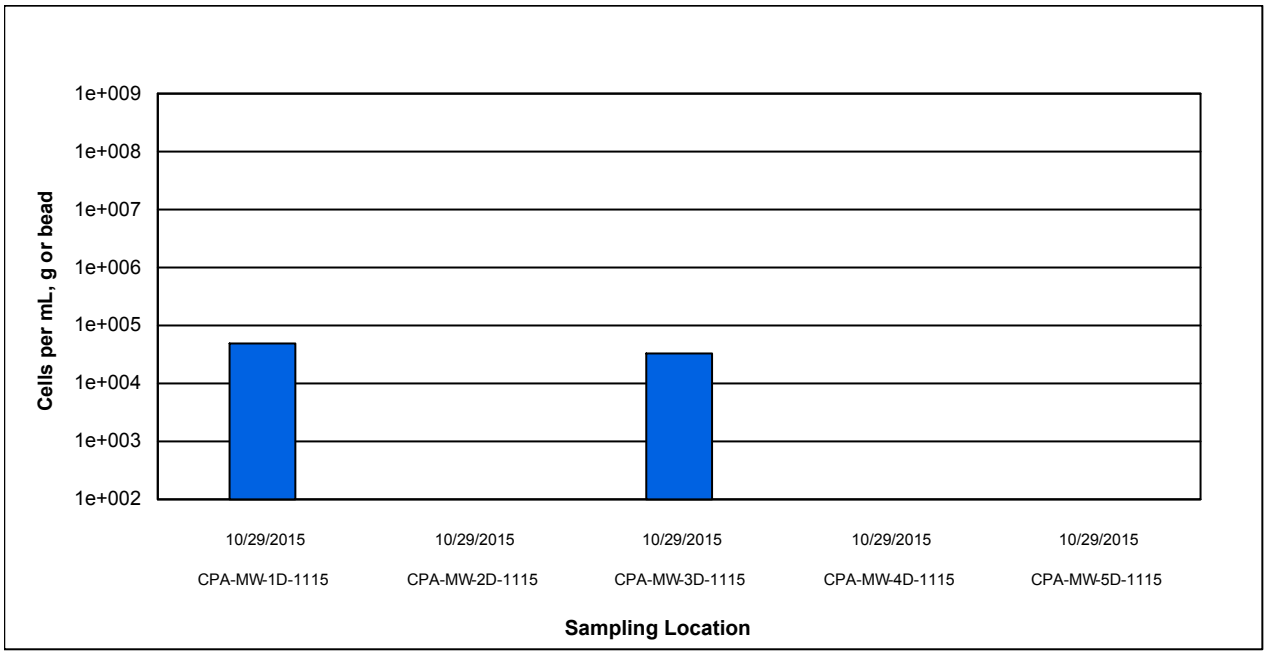

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

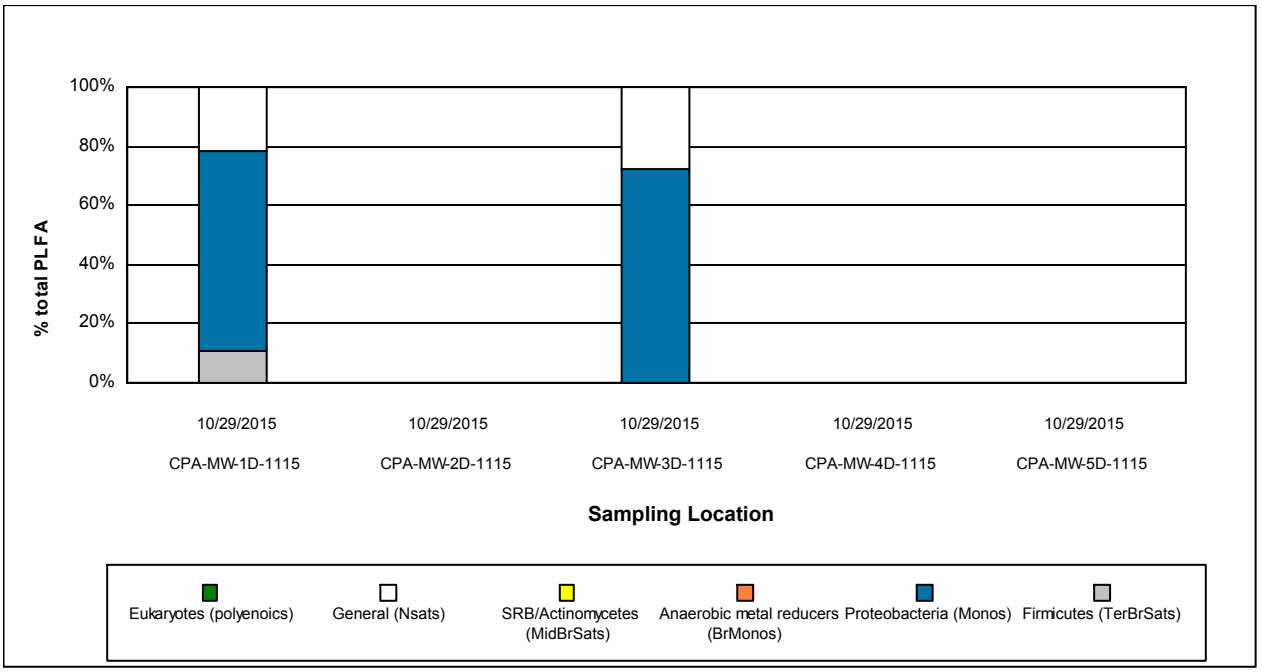

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

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Identifier: 111MJ **Date Rec:** 10/31/2015 **Report Date:** 12/03/2015

Client Project #: 140-3345 **Client Project Name:** WG Krummrich

Purchase Order #:

Comments: Please note samples BSA-MW-3D-1115, BSA-MW-4D-1115, CPA-MW-1D-1115, and CPA-MW-3D-1115 fell between reporting and detection limits for PLFA analysis. Also, samples CPA-MW-2D-1115, CPA-MW-4D-1115, and CPA-MW-5D-1115 fell beneath detection limits for PLFA analysis.

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Phospholipid Fatty Acid Analysis

Interpretation Guidelines

Phospholipids fatty acids (PLFA) are a main component of the membrane (essentially the "skin") of microbes and provide a powerful tool for assessing microbial responses to changes in their environment. This type of analysis provides direct information for assessing and monitoring sites where bioremediation processes, including natural attenuation, are of interest. Analysis of the types and amount of PLFA provides a broad based understanding of the entire microbial community with information obtained in three key areas viable biomass, community structure and metabolic activity.

What is the detection limit for PLFA?

Our limit of detection for PLFA analysis is ~150 picomoles of total PLFA and our limit of quantification is ~500 picomoles of total PLFA. Samples which contain PLFA amounts at or below 150 pmol cannot be used to determine biomass, likewise samples with PLFA content below ~500 pmol are generally considered to contain too few fatty acids to discuss community composition.

How should I interpret the PLFA results?

Interpreting the results obtained from PLFA analysis can be somewhat difficult, so this document was designed to provide a technical guideline. For convenience, this guideline has been divided into the three key areas.

Viable Biomass

PLFA analysis is one of the most reliable and accurate methods available for the determination of viable microbial biomass. Phospholipids break down rapidly upon cell death (21, 23), so biomass calculations based on PLFA content do not contain 'fossil' lipids of dead cells.

How is biomass measured?

Viable biomass is determined from the total amount of PLFA detected in a given sample. Since, phospholipids are an essential part of intact cell membranes they provide an accurate measure of viable cells.

How is biomass calculated?

Biomass levels are reported as cells per gram, mL or bead, and are calculated using a conversion factor of 20,000 cells/pmole of PLFA. This conversation factor is based upon cells grown in laboratory media, and varies somewhat with the type of organism and environmental conditions.

What does the concentration of biomass mean?

The overall abundance of microbes within a given sample is often used as an indicator of the potential for bioremediation to occur, but understanding the levels of biomass within each sample can be cumbersome. The following are benchmarks that can be used to understand whether the biomass levels are low, moderate or high.

Low	Moderate	High
10^3 to 10^4 cells	10^5 to 10^6 cells	10^7 to 10^8 cells

How do I know if a change in biomass is significant?

One of the primary functions of using PLFA analysis at contaminated sites is to evaluate how a community responds following a given treatment, but how does one know if the changes observed between two events are significant? As a general rule, biomass levels which increase or decrease by at least an order of magnitude are considered to be significant. However, changes in biomass levels of less than an order of magnitude may still show a trend. It is important to remember that many factors can affect microbial growth, so factors other than the treatment could be influencing the changes observed between sampling events. Some of the factors to consider are: temperature, moisture, pH, etc. The following illustration depicts three types of changes that occurred over time and the conclusions that could be drawn.

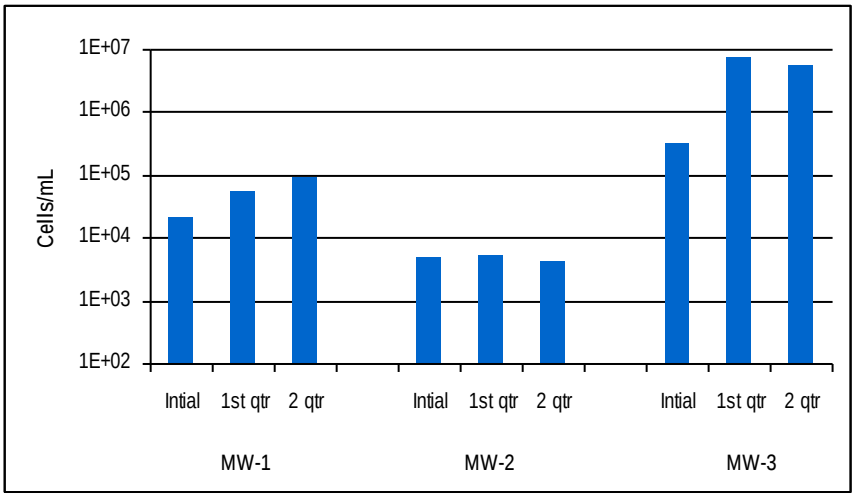

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

Conclusions from graph above:

- MW-1 showed a trend of biomass levels increasing steadily over time, although cell concentrations were ~10^4 cells/mL at each sampling event.
- MW-2 showed no notable trends or significant changes in biomass concentrations.
- MW-3 showed a significant increase in biomass levels between the initial and 1st quarter sampling events (from ~10^5 to ~10^6 cells/mL).

Community Structure:

The PLFA in a sample can be separated into particular types, and the resulting PLFA "profile" reflects the proportions of the categories of organisms present in the sample. Because groups of bacteria differ in their metabolic capabilities, determining which bacterial groups are present and their relative distributions within the community can provide information on what metabolic processes are occurring at that location. This in turn can also provide information on the subsurface conditions (i.e oxidation/reduction status, etc.). Table 1 describes the six major structural groups used and their potential relevance to site specific projects.

Table 1. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in eukaryotes such as fungi, protozoa, algae, higher plants, and animals.	Eukaryotic scavengers will often rise up and prey on contaminant utilizing bacteria

Following are answers to some of the common questions about community composition and some detailed descriptions of some typical shifts which can be observed between sampling events.

How is the community structure data presented?

Community structure data is presented as percentage (%) of the total amount of PLFA. In order to relate the complex mixture of PLFA to the organisms present, the ratio of a specific PLFA group is determined (detailed in Table 1 above), and this corresponds to the proportion of the related bacterial classification within the overall community structure. Because normal saturated PLFA are found in both prokaryotes (bacteria) and eukaryotes (fungi, protozoa, diatoms etc), their distribution provides little insight into the types of microbes that are present at a sampling location. However, high proportions of normal saturates are often associated with less diverse microbial populations.

How can community structure data be used to manage my site?

It is important to understand that microbial communities are often a mixture of different types of bacteria (e.g. aerobes, sulfate reducers, methanogens, etc) with the abundance of each group behaving like a seesaw, i.e. as the population of one group increases, another is likely decreasing, mostly due to competition for available resources. The PLFA profile of a sample provides a "fingerprint" of the microbial community, showing relative proportions of the specific bacterial types at the time of sampling. This is a great tool for detecting shifts within the community over time and also to evaluate similarities/differences between sampling locations. It is important to note that PLFA analysis of community structure is analyzing the microbes directly, not just secondary breakdown products. So this provides evidence of how the entire microbial community is responding to the treatment.

How do I recognize community shifts and what they mean?

Shifts in the community structure are indications of changing conditions and their effect on the microbial community, and, by extension on the metabolic processes occurring at the sampling location. Some of the more commonly seen shifts within the community are illustrated and discussed below:

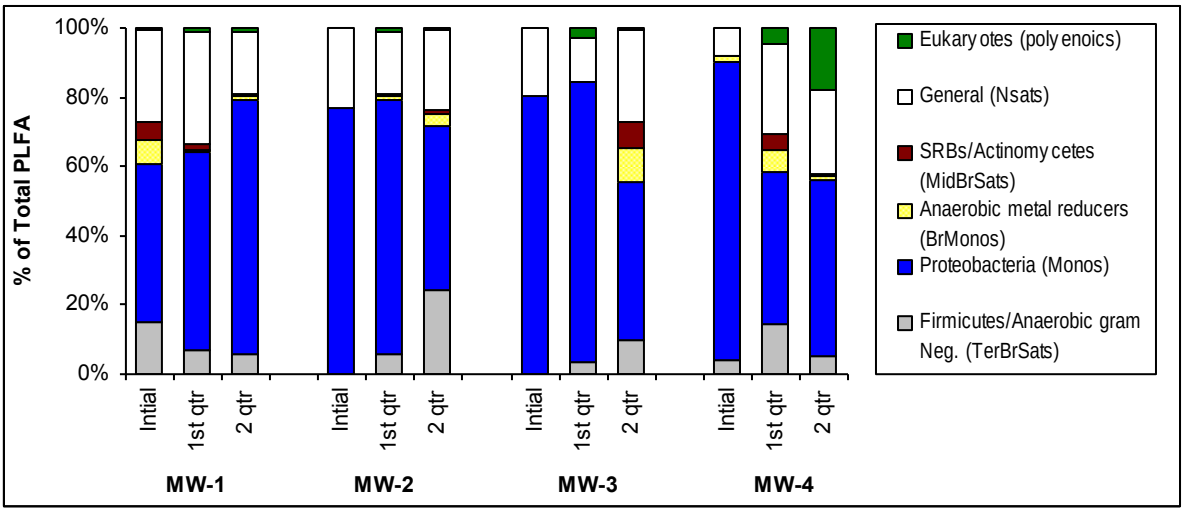

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See Table 1 for detailed descriptions of structural groups.

- **Increased Proteobacteria**

Proportions of Proteobacteria are of interest because it is one of the largest groups of bacteria and represents a wide variety of both aerobe and anaerobes. The majority of hydrocarbons (including benzene and naphthalene) are metabolized by some member of Proteobacteria, mainly due to their ability to grow opportunistically, quickly taking advantage of available food (i.e. hydrocarbons), and adapting quickly to changes in the environment. The detection of increased proportions of Proteobacteria coupled with increased biomass suggests that the Proteobacteria are consuming something. In situations where it is important to determine the extent to which the Proteobacteria are utilizing anaerobic or aerobic pathways, it is possible to measure relative proportions of specific biomarkers that are associated with anaerobic or aerobic pathways thus separating the Proteobacteria into different groups, based on pathways used. Sample MW-1 from Figure 2 depicts a shift in community structure where the proportion of Proteobacteria has increased over time.

- **Increased Firmicutes/Anaerobic Gram negative bacteria**

Increased proportions of Firmicutes/Anaerobic Gram negative bacteria generally indicate that conditions are becoming more reductive (i.e. more anaerobic). Proportions of Firmicutes are of particular interest in sites contaminated with chlorinated hydrocarbons because Firmicutes include anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination.

Enhanced bioremediation of chlorinated solvents often employs the injection of fermentable substrates which, when utilized by fermenting bacteria, results in the release of H_2. Engineered shifts in the microbial community can be shown by observing increased proportions Firmicutes following an injection of fermentable substrate. Through long-term monitoring of the community structure it is possible to know when re-injection may be necessary or desirable. Sample MW-2 from Figure 2 depicts a shift in community structure where the proportion of Firmicutes has increased over time.

- **Increased anaerobic metal reducing bacteria (BrMonos) and SRB/Actinomycetes (MidBrSats)**

An increase in the proportions of metal and sulfate reducing bacterial groups, especially when combined with shifts in the other bacterial groups, can provide information helpful to monitoring bioremediation. Generally, an increase in metal and sulfate reducers points to more reduced (anaerobic) conditions at the sampled location. This is especially true if there is an increase in Firmicutes at the same time. Large increases in either metal and sulfate reducers, particularly if accompanied by a decrease in Firmicutes, may suggest that conditions are becoming increasingly reduced. In this situation the metal and sulfate reducers may be out-competing dechlorinators for available H_2, thereby limiting the potential for reductive dechlorination at that location. Sample MW-3 from Figure 2 depicts a shift in community structure where the proportion of metal reducing bacteria has increased over time.

- **Increased Eukaryotes**

Eukaryotes include organisms such as fungi, protozoa, and diatoms. At a contaminated location, an increase in eukaryotes, particularly if seen with a decrease in the contaminant utilizing bacteria, suggests that eukaryotic scavengers are preying upon what had been an abundance of bacteria which were consuming the contaminant. Sample MW-4 from Figure 2 depicts a shift in community structure where the proportion of eukaryotes has increased over time.

Physiological status of Proteobacteria

The membrane of a microbe adapts to the changing conditions of its environment, and these changes are reflected in the PLFA. Toxic compounds or environmental conditions may disrupt the membrane and some bacteria respond by making *trans* fatty acids instead of the usual *cis* fatty acids (7) in order to strengthen the cell membrane, making it less permeable. Many Proteobacteria respond to lack of available substrate or to highly toxic conditions by making cyclopropyl (7) or mid-chain branched fatty acids (20) which point to less energy expenditure and a slowed growth rate. The physiological status ratios for Decreased Permeability (trans/cis ratio) and for Slowed Growth (cy/cis ratio) are based on dividing the amount of the fatty acid induced by environmental conditions by the amount of its biosynthetic precursor.

What does slowed growth or decreased permeability mean?

Ratios for slowed growth and for decreased permeability of the cell membrane provide information on the “health” of the Gram negative community, that is, how this population is responding to the conditions present in the environment. It should be noted that one must be cautious when interpreting these measures from only one sampling event. The most effective way to use the physiological status indicators is in long term monitoring and comparing how these ratios increase/decrease over time.

A marked increase in either of these ratios suggests a change in environment which is less favorable to the Gram negative Proteobacteria population. The ratio for slowed growth is a relative measure, and does not directly correspond to log or stationary phases of growth, but is useful as a comparison of growth rates among sampling locations and also over time. An increase in this ratio (i.e. slower growth rate) suggests a change in conditions which is not as supportive of rapid, “healthy” growth of the Gram negative population, often due to reduced available substrate (food). A larger ratio for decreased permeability suggests that the environment has become more toxic to the Gram negative population, requiring energy expenditure to produce *trans* fatty acids in order to make the membrane more rigid.

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SITE LOGIC Report

Stable Isotope Probing (SIP) Study

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MI Identifier: 111MJ

Report Date: December 2, 2015

Project: WG Krummrich, 140-3345

Comments:

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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-1115 and CPA-MW-3D-1115, respectively. Following a 28-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-1115 during the deployment period.
  - Total PLFA biomass for well BSA-MW-2D-1115 (1.35E+06 cells/bead) was in the moderate range.
  - The average PLFA $\delta^{13}C$ value was 740‰, indicating a moderate incorporation of ^{13}C-labeled benzene into microbial biomass.
  - The average DIC $\delta^{13}C$ value was 8,259‰, showing substantial benzene mineralization.
  - The PLFA community structure was primarily composed of firmicutes (60.79%). Monoenoics (27.25%) and normal saturates (9.61%) were the next most abundant groups. Indicators of eukaryotes, actinomycetes, and anaerobic metal reducers were also detected.

- Evidence for biodegradation of chlorobenzene in CPA-MW-3D-1115 was inconclusive, as the ^{13}C-enriched biomass fell below the detection limit.
  - The total PLFA biomass concentration, 3.34E+04 cells/bead, fell between the detection limit and reporting limit for PLFA analysis.
  - 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-1115 was composed of a large portion of monoenoics (72.51%) followed by normal saturates (27.49%).

PLFA Analysis - Standard Bio-Traps

- Total biomass concentrations in the standard BSA bio-traps fell within the low to moderate range (10^4 to 10^5 cells/bead).
  - The total biomass for samples BSA-MW-3D-1115 and BSA-MW-4D-1115 fell between the detection limit and reporting limit for PLFA analysis.
  - The community structures in the standard BSA bio-traps indicated that monoenoics and normal saturates were the most abundant groups.

- In the CPA wells, total PLFA biomass concentrations fell within the low range (10^4 cells/bead) or below the detection limit.
  - The total biomass for samples CPA-MW-1D-1115 and CPA-MW-3D-1115 fell between the detection limit and reporting limit for PLFA analysis.
  - The microbial community structures in these two wells were primarily composed of monoenoics and normal saturates.
  - The total PLFA biomass was below the detection limit in samples CPA-MW-2D-1115, CPA-MW-4D-1115 and CPA-MW-5D-1115.

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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-1115	CPA-MW-3D-1115
^{13}C Contaminant Loss		
^{13}C Benzene Pre-deployment (µg/bead)	157 ± 18	---
^{13}C Benzene Post-deployment (µg/bead)	135 ± 7	---
^{13}C Chlorobenzene Pre-deployment (µg/bead)	---	85 ± 10
^{13}C Chlorobenzene Post-deployment (µg/bead)	---	71 ± 2
Biomass & ^{13}C Incorporation		
Total Biomass (Cells/bead)	1.35E+06	3.34E+04 (J)
^{13}C Enriched Biomass (Cells/bead)	2.13E+04	ND
Average PLFA Del (‰)	740	ND
Maximum PLFA Del (‰)	2846	ND
^{13}C Mineralization		
DIC Del (‰)	8259	-6
% 13C	9.38	1.10
Community Structure (% total PLFA)		
Firmicutes (TerBrSats)	60.79	0.00
Proteobacteria (Monos)	27.25	72.51
Anaerobic metal reducers (BrMonos)	0.97	0.00
Actinomycetes (MidBrSats)	0.97	0.00
General (Nsats)	9.61	27.49
Eukaryotes (Polyenoics)	1.40	0.00
Physiological Status (Proteobacteria only)		
Slowed Growth	0.12	0.00
Decreased Permeability	0.06	0.00

Legend: ND= Non Detect J = Estimated value between detection limit and reporting limit

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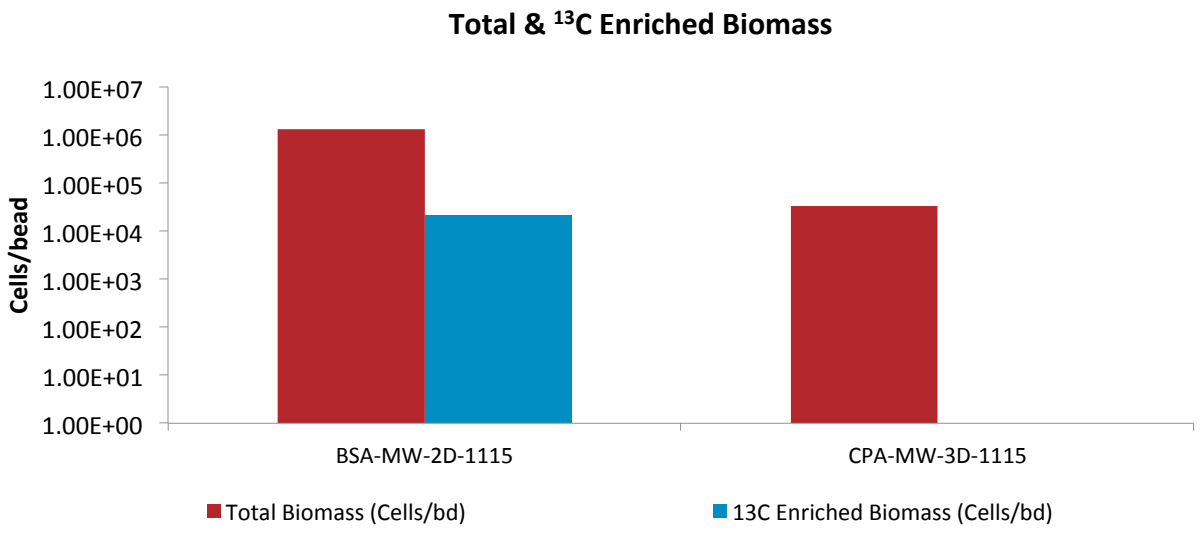

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

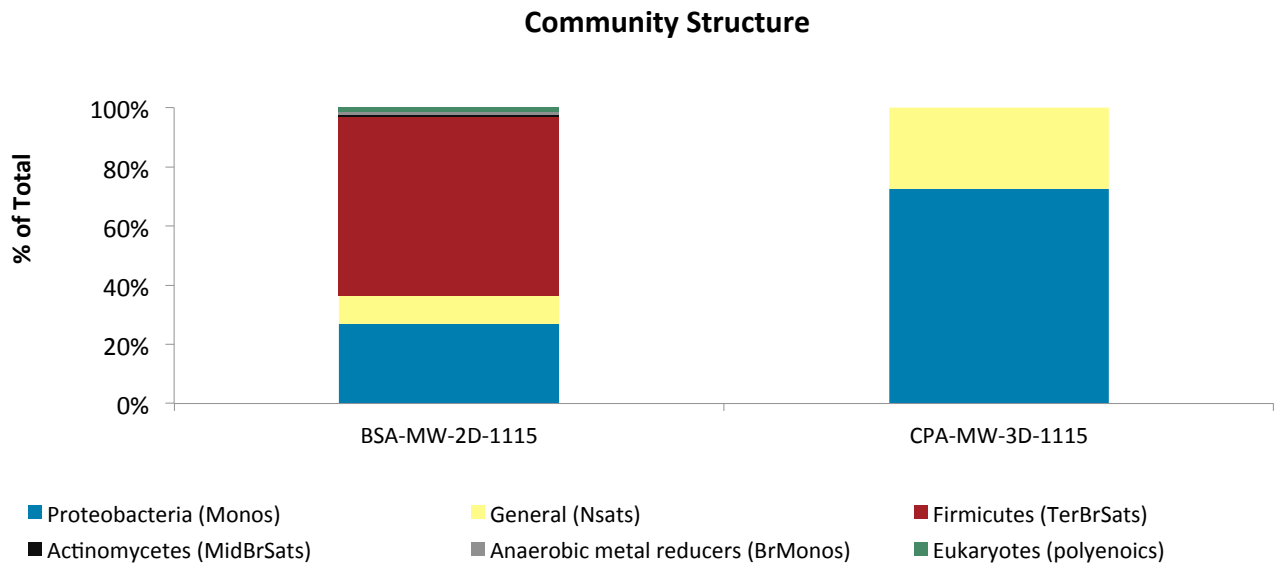

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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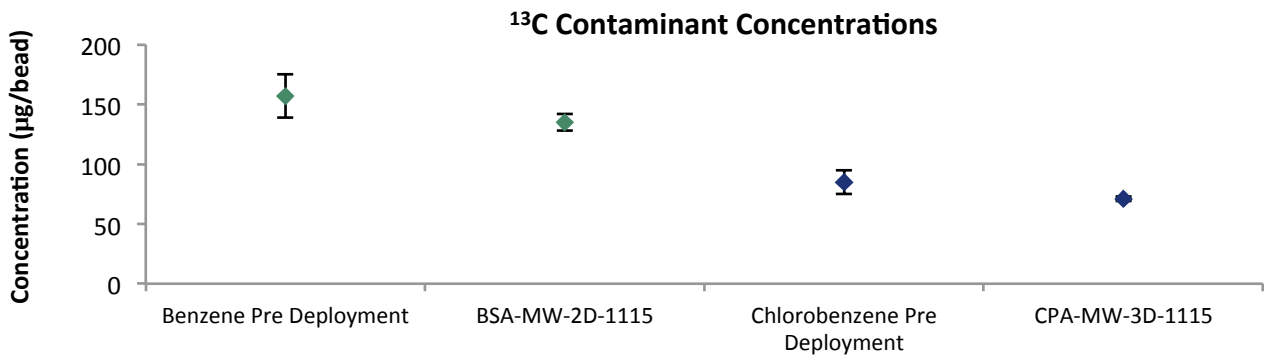

Figure 3. Comparison of Pre-deployment concentrations loaded on Bio-Sep beads to the concentrations detected after incubation.

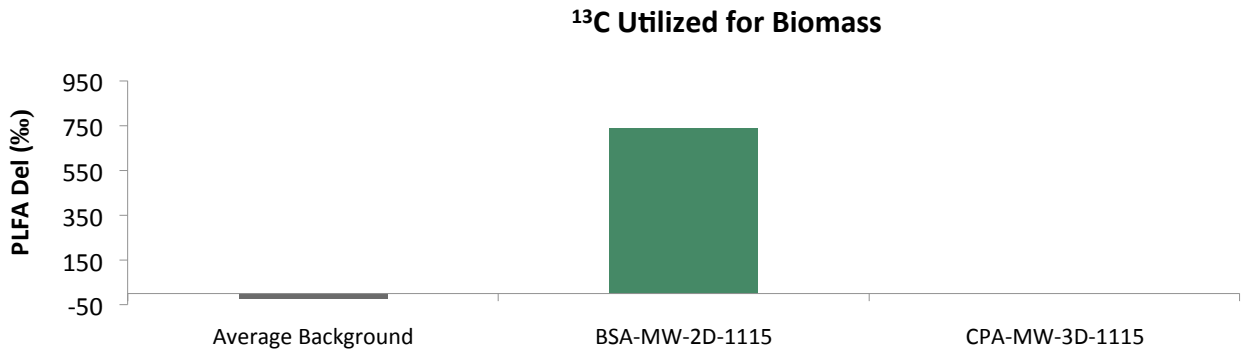

Figure 4. Comparison of the average Del value obtained from PLFA biomarkers from each Bio-Trap® unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

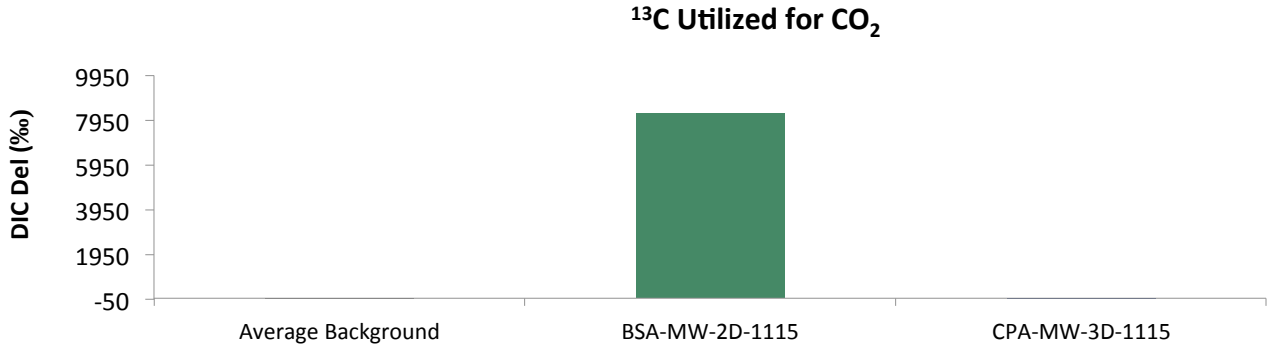

Figure 5. Comparison of the Del value obtained from DIC from each Bio-Trap® unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

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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)	2.63E+05	1.35E+06	1.69E+04 (J)	1.99E+04 (J)	2.27E+05
Community Structure (% total PLFA)					
Firmicutes (TerBrSats)	2.53	60.79	0.00	0.00	1.28
Proteobacteria (Monos)	75.45	27.25	88.84	67.00	50.94
Anaerobic metal reducers (BrMonos)	0.00	0.97	0.00	0.00	0.00
Actinomycetes (MidBrSats)	0.00	0.97	0.00	0.00	0.00
General (Nsats)	22.03	9.61	11.16	33.00	25.63
Eukaryotes (Polyenoics)	0.00	1.40	0.00	0.00	22.16
Physiological Status (Proteobacteria only)					
Slowed Growth	0.58	0.12	0.00	0.00	0.00
Decreased Permeability	2.31	0.06	0.00	0.00	0.00

Legend: ND= Non Detect J = Estimated value between detection limit and reporting limit

Table 3. Summary of the PLFA results for the chlorobenzene wells obtained from the Bio-Trap® Units.

Sample Name	CPA-MW-1D	CPA-MW-2D	CPA-MW-3D	CPA-MW-4D	CPA-MW-5D
Biomass Concentration					
Total Biomass (Cells/bead)	4.74E+04 (J)	<1.67+04	3.34E+04 (J)	<1.66E+04	<1.67E+04
Community Structure (% total PLFA)					
Firmicutes (TerBrSats)	11.03	0.00	0.00	0.00	0.00
Proteobacteria (Monos)	67.22	0.00	72.51	0.00	0.00
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)	21.74	0.00	27.49	0.00	0.00
Eukaryotes (Polyenoics)	0.00	0.00	0.00	0.00	0.00
Physiological Status (Proteobacteria only)					
Slowed Growth	0.58	0.00	0.00	0.00	0.00
Decreased Permeability	0.00	0.00	0.00	0.00	0.00

Legend: ND= Non Detect J = Estimated value between detection limit and reporting limit

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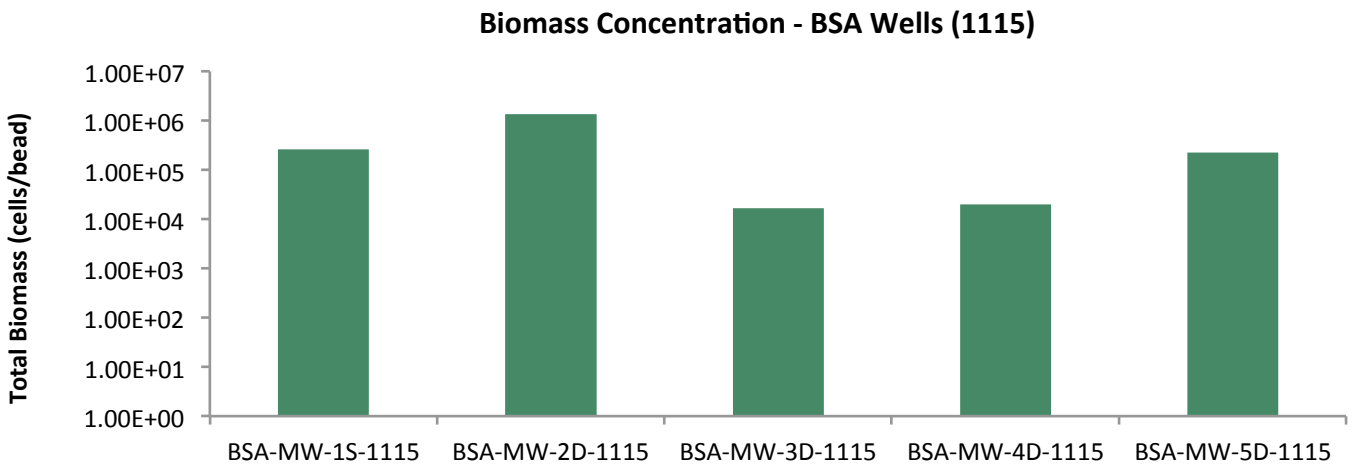

Figure 6. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

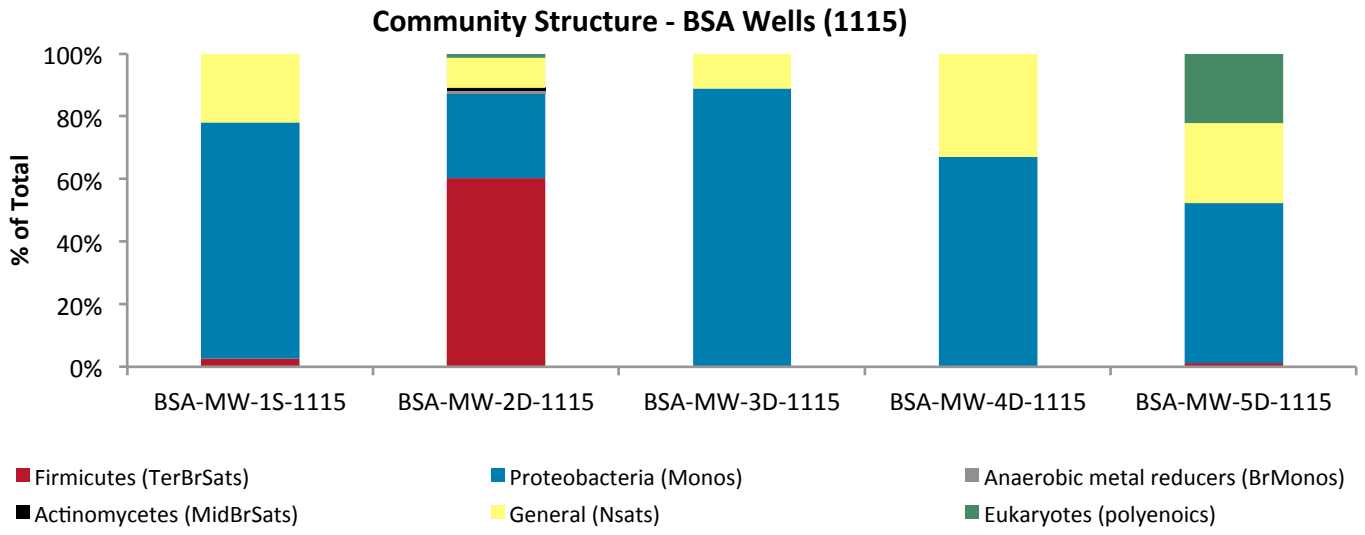

Figure 7. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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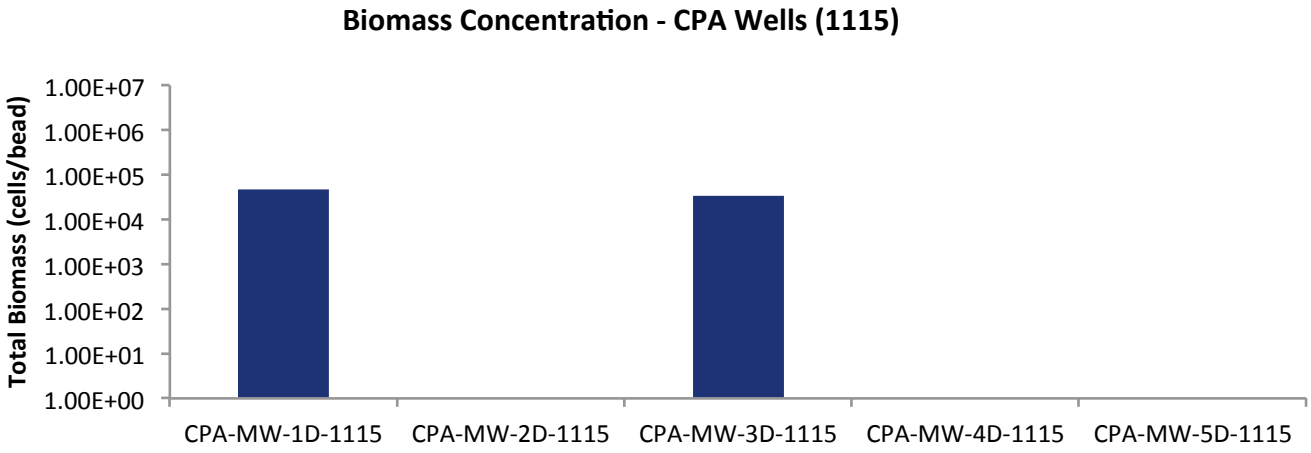

Figure 8. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

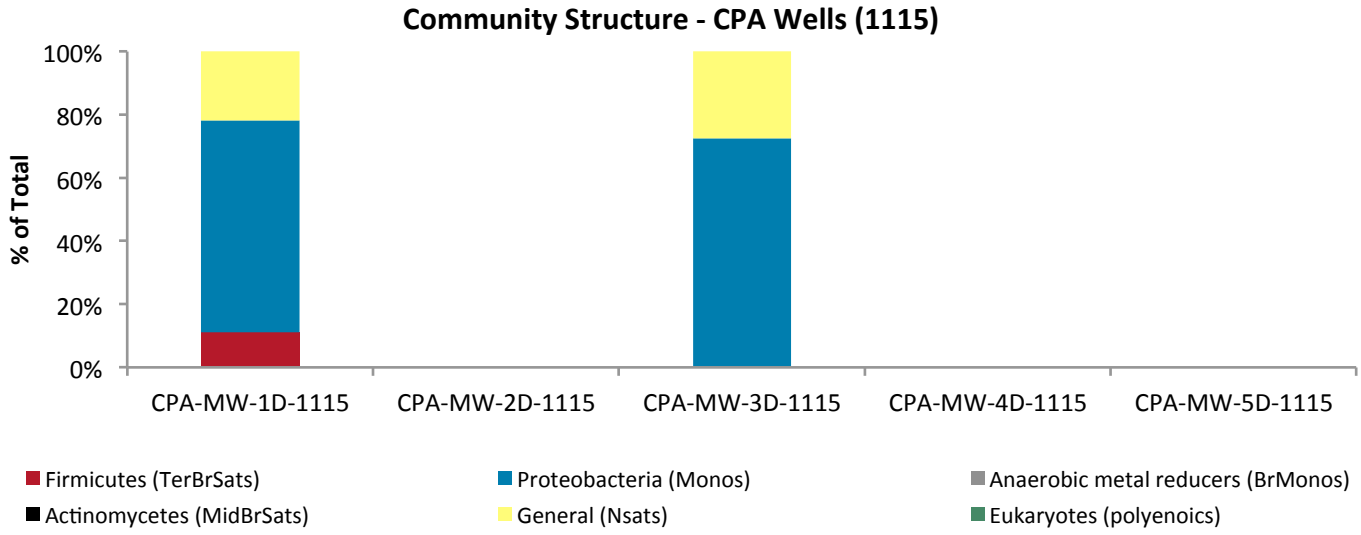

Figure 9. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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Interpretation

Interpretation of the results of the SIP Bio-Trap® study must be performed with due consideration of site conditions, site activities, and the desired treatment mechanism. The following discussion describes interpretation of results in general terms and is meant to serve as a guide.

Contaminant Concentration: Bio-Traps® are baited with a ^{13}C labeled contaminant of concern and a pre-deployment concentration is determined prior to shipping. Following deployment, Bio-Traps® are recovered for analysis including measurement of the concentration of the ^{13}C labeled contaminant remaining. Pre- and post-deployment concentrations are used to calculate percent loss.

Biomass Concentrations: PLFA analysis is one of the most reliable and accurate methods available for the determination of viable (live) biomass. Phospholipids break down rapidly upon cell death, so biomass calculations based on PLFA content do not include "fossil" lipids from dead cells. Total biomass (cells/bead) is calculated from total PLFA using a conversion factor of 20,000 cells/pmole of PLFA. When making comparisons between wells, treatments, or over time, differences of one order of magnitude or more are considered significant.

	Total Biomass	
Low	**Moderate**	**High**
10^3 to 10^4 cells	10^5 to 10^6 cells	10^7 to 10^8 cells

For SIP studies, the ^{13}C enriched PLFA is also determined to conclusively demonstrate contaminant biodegradation and quantify incorporation into biomass as a result of the ^{13}C being used for cellular growth. The % ^{13}C incorporation (^{13}C enriched biomass/total biomass) is also provided in the data summary table, but the value must be interpreted carefully especially when comparing wells or treatments. Typically, biodegradation of a contaminant of concern is performed by a small subset of the total microbial community. For Bio-Traps® with large total biomass, the % ^{13}C incorporation value could be low despite significant ^{13}C labeled biomass and loss of the compound. The % ^{13}C incorporation should be viewed in light of total biomass, percent loss, and dissolved inorganic carbon (DIC) results.

^{13}C enrichment data is often reported as a del value. The del value is the difference between the isotopic ratio ($^{13}C/^{12}C$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand, denoted ‰).

R_{std} is the naturally occurring isotopic ratio and is approximately 0.011180 (roughly 1% of naturally occurring carbon is ^{13}C). The isotopic ratio, R_x, of PLFA is typically less than the R_{std} under natural conditions, resulting in a del value between -20 and -30‰. For a SIP Bio-Trap® study, biodegradation and incorporation of the ^{13}C labeled compound into PLFA results in a larger $^{13}C/^{12}C$ ratio (R_x) and thus del values greater than under natural conditions. Typical PLFA del values are provided below.

	PLFA Del (‰)	
Low	**Moderate**	**High**
0 to 100	100 to 1,000	>1,000

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Dissolved Inorganic Carbon (DIC): Often, bacteria can utilize the ^{13}C labeled compound as both a carbon and energy source. The ^{13}C portion used as a carbon source for growth can be incorporated into PLFA as discussed above, while the ^{13}C used for energy is oxidized to $^{13}CO_2$ (mineralized).

^{13}C enriched CO_2 data is often reported as a del value as described above for PLFA. Under natural conditions, the R_x of CO_2 is approximately the same as R_{std} (0.01118 or about 1.1% ^{13}C). For an SIP Bio-Trap® study, mineralization of the ^{13}C labeled contaminant of concern would lead to a greater value of R_x (increased $^{13}CO_2$ production) and thus a positive del value. As with PLFA, del values between 0 and 100‰ are considered low, values between 100 and 1,000‰ are considered moderate, and values greater than 1,000‰ are considered high. Thus DIC %^{13}C are considered low if the value is less than 1.23%, moderate if between 1.23 and 2.24%, and high if greater than 2.24%.

Dissolved Inorganic Carbon (DIC) Del and %^{13}C		
Low	**Moderate**	**High**
0 to 100	100 to 1,000	>1,000
1.11 to 1.23%	1.23 to 2.24%	>2.24%

Community Structure (% total PLFA): Community structure data is presented as a percentage of PLFA structural groups normalized to the total PLFA biomass. The relative proportions of the PLFA structural groups provide a "fingerprint" of the types of microbial groups (e.g. anaerobes, sulfate reducers, etc.) present and therefore offer insight into the dominant metabolic processes occurring at the sample location. Thorough interpretation of the PLFA structural groups depends in part on an understanding of site conditions and the desired microbial biodegradation pathways. For example, an increase in mid chain branched saturated PLFA (MidBrSats), indicative of sulfate reducing bacteria (SRB) and *Actinomycetes*, may be desirable at a site where anaerobic BTEX biodegradation is the treatment mechanism, but would not be desirable for a corrective action promoting aerobic BTEX or MTBE biodegradation. The following table provides a brief summary of each PLFA structural group and its potential relevance to bioremediation.

Table 2. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in higher plants, and animals.	Eukaryotic scavengers will often prey on contaminant utilizing bacteria.

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Physiological Status (*Proteobacteria*): Some *Proteobacteria* modify specific PLFA as a strategy to adapt to stressful environmental conditions (3, 4). For example, *cis* monounsaturated fatty acids may be modified to cyclopropyl fatty acids during periods of slowed growth or modified to *trans* monounsaturated fatty acids to decrease membrane permeability in response to environmental stress. The ratio of product to substrate fatty acid thus provides an index of their health and metabolic activity. In general, status ratios greater than 0.25 indicate a response to unfavorable environmental conditions.

Glossary

Del: A Del value is the difference between the isotopic ratio ($^{13}C/^{12}C$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand denoted ‰).

$$Del = (R_x - R_{std})/R_{std} \times 1000$$

References

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