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

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

gmrina@eastman.com

February 26, 2018

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

Re: Route 3 Drum Site Groundwater Monitoring Program
4th Quarter 2017 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Ms. Bury:

Enclosed please find the Route 3 Drum Site Groundwater Monitoring Program 4th Quarter 2017 Data Report for Solutia Inc.'s W. G. Krummrich Plant, Sauget, IL.

On May 2, 2017, Solutia submitted a "Periodic Technical Review" recommending changes to this groundwater monitoring program, along with similar Reviews for the other programs. Solutia would like to receive - and resolve - US EPA's comments as soon as possible before June 1, the latest date to begin implementation of 2nd quarter 2018 monitoring, but which we would not otherwise perform per our recommendations.

If you have any questions or comments regarding this report, please contact me at (314) 674-3312 or gmrina@eastman.com

Sincerely,

Gerald M. Rinaldi
Manager, Remediation Services

Enclosure

cc: Distribution List

DISTRIBUTION LIST

Route 3 Drum Site Groundwater Monitoring Program
4th Quarter 2017 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

USEPA

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

Solutia

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

GROUNDWATER MONITORING REPORT

GROUNDWATER MONITORING REPORT

4th QUARTER 2017 DATA REPORT
ILLINOIS ROUTE 3 DRUM SITE
GROUNDWATER MONITORING
SOLUTIA INC., W.G. KRUMMRICH PLANT
SAUGET, ILLINOIS

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

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

February 2018 **140-3345**

A world of capabilities delivered locally

Golder Associates

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) is pleased to submit this report summarizing the 4th Quarter 2017 (4Q17) groundwater sampling activities at the Illinois Route 3 Drum Site (Site), located within "Lot F" on Figure 1. The Site is associated with the Solutia Inc. (Solutia) W.G. Krummrich (WGK) plant in Sauget, Illinois located at 500 Monsanto Avenue, Sauget, Illinois. The 4Q17 sampling event was performed in general accordance with the Revised Illinois Route 3 Drum Site Operation and Maintenance Plan (Work Plan) (Solutia 2008).

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

Two (2) monitoring wells, located in the shallow hydrogeologic unit (SHU), are sampled during the Drum Site monitoring event. The locations of the monitoring wells are shown on Figure 2 and the sample locations are included on the table below.

Area	Location Relative to Area	Sample Identification
Illinois Route 3 Drum Site	Adjacent	GM-31A
	Downgradient	GM-58A

The water levels of the two (2) monitoring wells are measured quarterly and total depths are measured in the 1st quarter of each year.

During the quarterly sampling events, monitoring wells are sampled for the following semi-volatile organic compound (SVOC) analytes: 1,1-biphenyl, 1-chloro-2,4-dinitrobenzene, 2,4,6-trichlorophenol, 2,4-dichlorophenol, 2-chloronitrobenzene/4-chloronitrobenzene, 2-nitrobiphenyl, 3,4-dichlorodinitrobenzene, 3-nitrobiphenyl, 3-nitrochlorobenzene, 4-nitrobiphenyl, nitrobenzene, and pentachlorophenol. In addition, the following monitored natural attenuation (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

2.0 FIELD ACTIVITIES

Golder conducted 4Q17 sampling activities on December 11, 2017. Activities were performed in general accordance with the Work Plan.

2.1 Water Level Measurement

Prior to sampling during the 4Q17 event, Golder performed a synoptic round of water level and total depth measurements at 76 monitoring wells and piezometers on November 30 and December 1, 2017. The following monitoring well series is included in the Drum Site program:

- GM-series

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 4Q17 sampling event, NAPL was not detected in any of the monitoring wells or piezometers. Total depths are measured during the 1st quarter of each year. The 4Q17 well gauging information is shown on Table 1.

2.2 Groundwater Sample Collection

Monitoring wells sampled during the 4Q17 Drum Site event were purged and sampled using low-flow sampling techniques, low-density polyethylene tubing (LDPE) and a submersible (GM-31A) or peristaltic pump (GM-58A). The pump intake was placed at approximately the middle of the screened interval for each well. Purging occurred 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 for each well. Parameters were measured for each system volume purged using a multi-parameter meter. The system volume includes the volume of the tubing, the volume of the pump and the volume of the 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:

- SVOCs – United States Environmental Protection Agency (USEPA) SW-846 Method 8270D

- MNA parameters – alkalinity (Method SM 2320B), free carbon dioxide (Method SM4500 CO2C), 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)

Gas sensitive parameter sample bottles were filled first followed by SVOCs 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

One (1) analytical duplicate (AD), one (1) equipment blank (EB) and one (1) matrix spike/matrix spike duplicate (MS/MSD) pair were collected during the 4Q17 Drum Site sampling event. Sample bottles were labeled with the date and time of sample collection, sampler initials, analysis requested, preservative used, and sample identification based on the following nomenclature "GM-##A-MMYY-QA/QC" where:

- **"GM"** denotes "Geraghty & Miller" and **"##A"** denotes monitoring well location and number
- **"MMYY"** denotes month and year of sampling quarter, e.g.: December (4th Quarter), 2017 (1217)
- **"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. A copy of the COC is 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 Canton, Ohio.

2.4 Decontamination and Investigation Derived Waste

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

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

3.0 QUALITY ASSURANCE

Sample results were provided by TestAmerica in electronic format and reviewed for quality and completeness by Golder in accordance with the Work Plan. Results were submitted in one (1) sample delivery group (SDG) as follows:

Sample Delivery Group (SDG)	Sample Identification
KOM039	GM-58A-1217
	GM-31A-1217
	GM-31A-1217-AD
	GM-31A-1217-EB

Golder completed validation of the analytical data following the general guidelines in the Work Plan, and the most recent versions of the national data validation guidelines. The following guidelines were generally used:

- USEPA Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review, EPA-540-R-2017-002, January 2017
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540-R-2017-001, January 2017

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

4.0 OBSERVATIONS

SVOCs were not detected in groundwater samples collected from monitoring well GM-58A during the 4Q17 sampling event. The SVOC 2,4,6-trichlorophenol was detected in GM-31A and GM-31A-AD at a concentration of 82 µg/L and 11 µg/L, respectively. The SVOC 2-nitrobiphenyl was detected in GM-31A at a concentration of 31 µg/L, and 2-chloronitrobenzene/4-chloronitribenzene was detected in GM-31A-AD at a concentration of 21 µg/L. Groundwater analytical data for SVOCs and MNA parameters is presented in Tables 2 and 3, respectively. The groundwater analytical laboratory results including data validation reports are included in Appendix D.

5.0 CLOSING

Golder appreciates the opportunity to assist Solutia Inc. with the Illinois Route 3 Drum Site groundwater sampling events. Please contact the undersigned if you need additional information.

Sincerely,

GOLDER ASSOCIATES INC.

Samantha J. DiCenso, E.I.T.
Staff Environmental Engineer

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

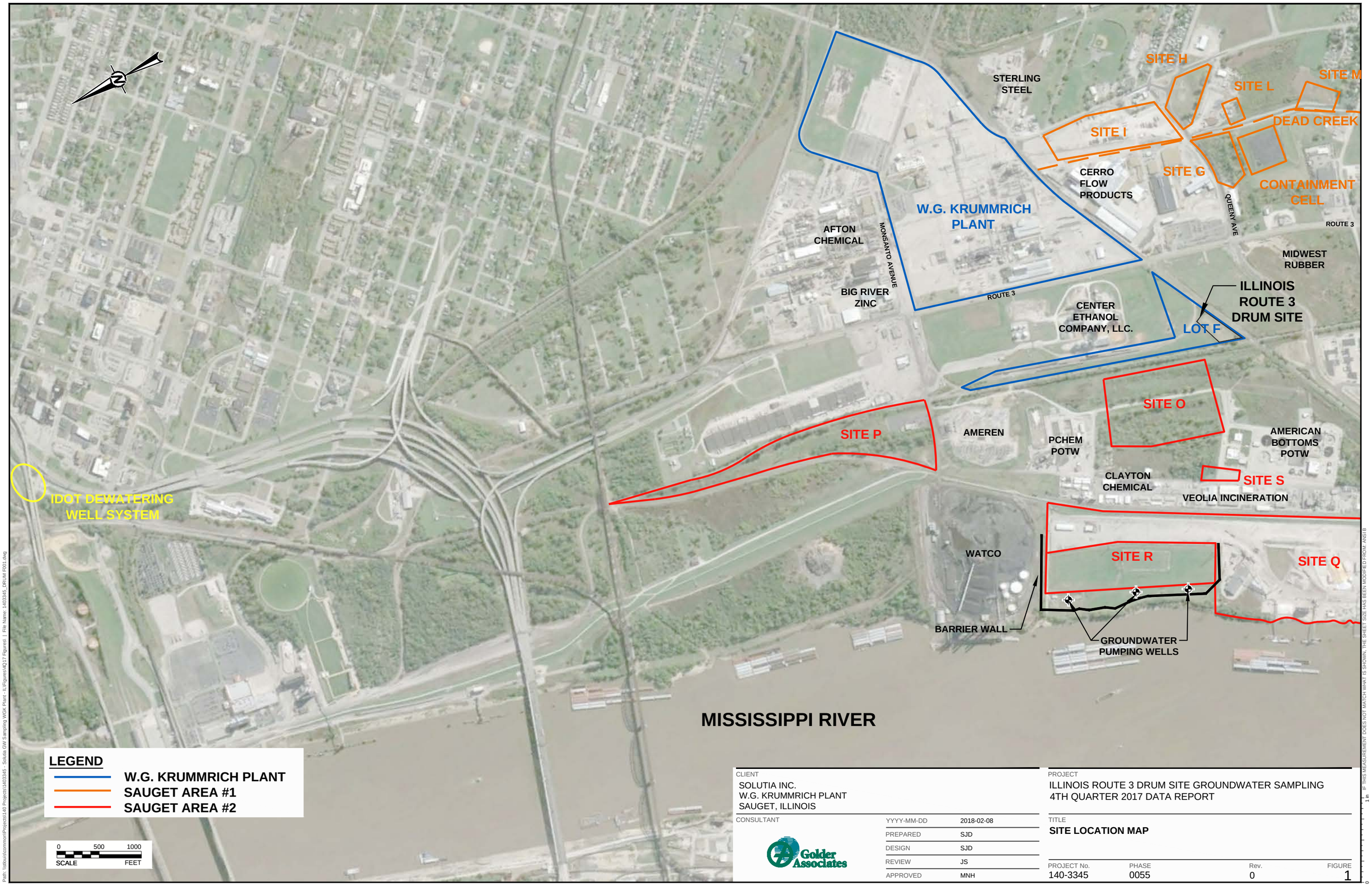
6.0 REFERENCES

Solutia Inc., 2008. Revised Illinois Route 3 Drum Site Operation and Maintenance Plan, W.G. Krummrich Facility, Sauget, IL, May 2008.

USEPA, 2017. Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review.

USEPA, 2017. Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review.

FIGURES



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

CONSULTANT
Golder Associates

YYYY-MM-DD	2018-02-08
PREPARED	SJD
DESIGN	SJD
REVIEW	JS
APPROVED	MNH

PROJECT
ILLINOIS ROUTE 3 DRUM SITE GROUNDWATER SAMPLING
4TH QUARTER 2017 DATA REPORT

TITLE
SITE LOCATION MAP

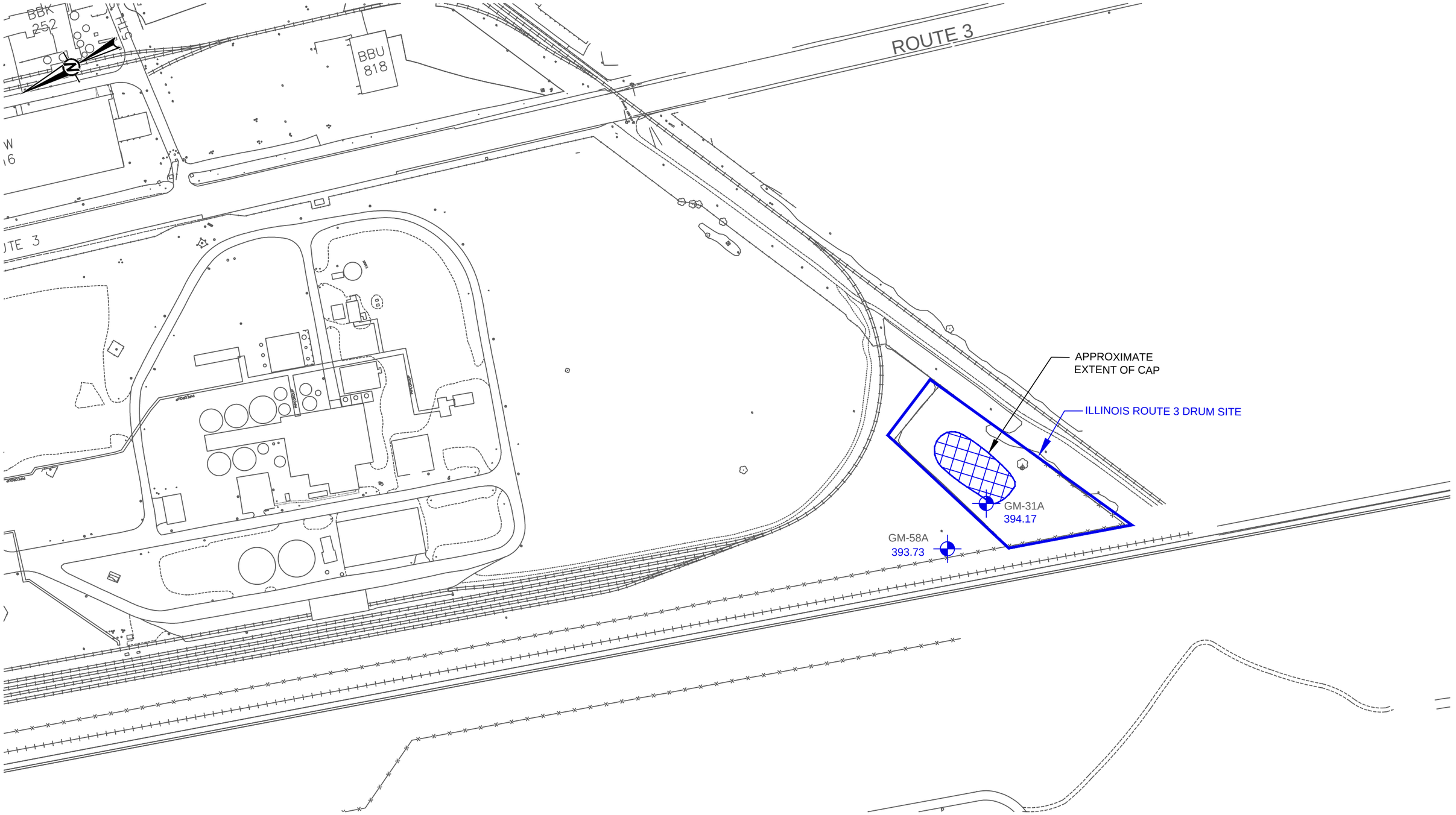
PROJECT No.	PHASE	Rev.	FIGURE
140-3345	0055	0	1

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

1in

0

Path: \\golusk\common\Projects\140 Projects\1403345 - Solutia GW Sampling WGK Plant - IL\Figures\4Q17 Figures\ | File Name: 1403345_DRUM F001.dwg



LEGEND

MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (FT NAVD)

NOTES

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

0 100 200
SCALE FEET

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

CONSULTANT
Golder Associates

YYYY-MM-DD	2018-02-08
PREPARED	SJD
DESIGN	SJD
REVIEW	JS
APPROVED	MNH

PROJECT
ILLINOIS ROUTE 3 DRUM SITE GROUNDWATER SAMPLING
4TH QUARTER 2017 DATA REPORT

TITLE
MONITORING WELL LOCATIONS AND GROUNDWATER ELEVATION MAP

PROJECT No.	PHASE	Rev.	FIGURE
140-3345	0055	0	2

TABLES

Table 1
Monitoring Well Gauging Information
4Q17 Route 3 Drum Site Monitoring Program
Solutia Inc., W.G. Krummrich Plant
Sauget, Illinois

Well Identification	Monitoring Well Construction Data						4Q17 - November 30 and December 1, 2017			
	Ground Surface Elevation[1] (ft)	Top of Casing Elevation[1] (ft)	Top of Screen Depth (ft bgs)	Bottom of Screen Depth (ft bgs)	Top of Screen Elevation[1] (ft)	Bottom of Screen Elevation[1] (ft)	Water Level (ft btoc)	Depth to NAPL (ft btoc)	Total Depth[2] (ft btoc)	Water Level Elevation[1] (ft)
SHU 395-380 ft NAVD 88										
GM-31A	416.63	418.63	19.00	39.00	397.63	377.63	24.46	NP	39.67	394.17
GM-58A	412.24	414.24	19.40	39.40	392.84	372.84	20.51	NP	40.78	393.73

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

Prepared By: SJD 01/03/2018
Checked By: TJG 01/15/2018
Reviewed By: MNH 02/15/2018

Table 2
Groundwater Analytical Results
4Q17 Route 3 Drum Site Monitoring Program
Solutia Inc., W.G. Krummrich Plant
Sauget, Illinois

Sample Identification	Sample Date	SVOCs (µg/L)											
		1,1'-Biphenyl	1-Chloro-2,4-Dinitrobenzene	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2-Chloronitrobenzene/ 4-Chloronitrobenzene	2-Nitrobiphenyl	3,4-Dichloronitrobenzene	3-Nitrobiphenyl	3-Nitrochlorobenzene	4-Nitrobiphenyl	Nitrobenzene	Pentachlorophenol
SHU													
GM-31A-1217	12/11/2017	<9.6 J	<9.6 J	**82 J**	<9.6 J	<19 J	**31 J**	<9.6 J	<9.6 J	<9.6 J	<9.6 J	<9.6 J	<48 J
GM-31A-1217-AD	12/11/2017	<10 J	<10 J	**11 J**	<10 J	**21 J**	<10 J	<10 J	<10 J	<10 J	<10 J	<10 J	<50J
GM-58A-1217	12/11/2017	<11 J	<11 J	<11 J	<11 J	<22 J	<11 J	<11 J	<11 J	<11 J	<11 J	<11 J	<54 J

Notes
SVOCs - semi-volatile organic compounds
µg/L - micrograms per liter
< - result is non-detect, less than the reporting limit
J - result is an estimated value
AD - analytical duplicate
SHU - shallow hydrogeologic unit
Bold - indicates detection greater than reporting limit

Prepared By: TJG 02/01/2018
Checked By: JE 02/02/2018
Reviewed By: MNH 02/15/2018

Table 3
4Q17 Route 3 Drum Site Monitoring Program
Solutia Inc., W.G. Krummrich Plant
Sauget, Illinois

Sample Identification	Sample Date	Monitored Natural Attenuation Parameters																
		Alkalinity (mg/L)	Carbon Dioxide (mg/L)	Chloride (mg/L)	Dissolved Oxygen (mg/L)	Ethane (µg/L)	Ethylene (µg/L)	Ferrous Iron (mg/L)	Iron (mg/L)	Iron, Dissolved (mg/L)	Manganese (mg/L)	Manganese, Dissolved (mg/L)	Methane (µg/L)	Nitrogen, Nitrate (mg/L)	Sulfate as SO4 (mg/L)	Total Organic Carbon (mg/L)	Dissolved Organic Carbon (mg/L)	ORP (mV)
SHU																		
GM-31A-1217	12/11/2017	370 J	60 J	22	0.07	<1.1	1.0	-	0.30	-	1.3	-	4.4	0.18	65 J D	4.7	-	78.30
GM-31A-F(0.2)-1217	12/11/2017	-	-	-	-	-	-	0.0	-	<0.050	-	1.2	-	-	-	-	4.4	-
GM-58A-1217	12/11/2017	440 J	50 J	18	0.16	<1.1	<1.0	-	0.15	-	0.54	-	<0.58	0.25	69 D	3.3	-	72.75
GM-58A-F(0.2)-1217	12/11/2017	-	-	-	-	-	-	0.0	-	<0.050	-	0.58	-	-	-	-	3.6	-

Notes

Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) values represent the final field measurements prior to sampling
Ferrous Iron was field measured using a 0.2 µm field filtered sample
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
D - compound analyzed at a dilution
J - result is an estimated value
"-" - not analyzed
SHU - shallow hydrogeologic unit

Prepared By: TJG 02/01/2018
Checked By: JE 02/02/2018
Reviewed By: MNH 02/15/2018

APPENDIX A
GROUNDWATER PURGING AND SAMPLING FORMS

In-Situ Inc.

12/11/2017

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	SJD	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	Drum	Tubing Diameter	0.19 in
Site Name	W.G.K.	Tubing Length	44.32 ft
		Pump Placement from TOC	31.00 ft

Well Information:		**Pumping Information:**	
Well Id	GM-31A	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	437 mL
Well Total Depth	39.67 ft	Calculated Sample Rate	87 sec
Depth to Top of Screen	21.00 ft	Sample Rate	87 sec
Screen Length	20 ft	Stabilized Drawdown	0.00 ft
Depth to Water	25.02 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	12:06:13	16.27	6.83	995.08	5.65	0.08	77.58
	12:07:40	16.23	6.83	993.55	5.29	0.08	77.45
	12:09:07	16.21	6.84	992.62	5.04	0.08	77.59
	12:10:34	16.20	6.84	992.41	5.08	0.08	77.67
	12:12:01	16.22	6.82	993.78	4.94	0.07	78.30
Variance in Last 3 Readings		-0.02	0.01	-0.93	-0.25	0.00	0.14
		-0.01	0.00	-0.21	0.04	0.00	0.08
		0.02	-0.02	1.37	-0.14	-0.01	0.63

Notes:

In-Situ Inc.

12/11/2017

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	SJD	Pump Model/Type	Peristaltic
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	Drum	Tubing Diameter	0.19 in
Site Name	W.G.K.	Tubing Length	48.33 ft
		Pump Placement from TOC	31.40 ft

Well Information:		**Pumping Information:**	
Well Id	GM-58A	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	359 mL
Well Total Depth	40.78 ft	Calculated Sample Rate	71 sec
Depth to Top of Screen	21.40 ft	Sample Rate	71 sec
Screen Length	20 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	10:42:01	13.75	6.79	998.40	10.0	0.31	81.59
	10:43:12	14.25	6.81	989.81	6.85	0.20	77.94
	10:44:23	14.43	6.82	987.66	6.57	0.17	74.97
	10:45:34	14.48	6.81	986.57	5.60	0.17	74.14
	10:46:45	14.50	6.82	987.47	4.47	0.16	72.75
Variance in Last 3 Readings		0.18	0.01	-2.15	-0.28	-0.03	-2.97
		0.05	-0.01	-1.09	-0.97	0.00	-0.83
		0.02	0.01	0.90	-1.13	-0.01	-1.39

Notes:

APPENDIX B
CHAIN-OF-CUSTODY

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Samantha DiCenso	Date:	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: 4Q17 Drum Site GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Plant	☐ 2 days			
P O # 42262863	☐ 1 day			2 coolers

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	SVOCs by 8270	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Methane by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
GWM-31A-1217	12/11/17	1212	G	W	12	N		2	1	1	1	3	1	3			
GWM-31A-F(0.2)-1217		1212			4	Y									1	3	
GWM-31A-1217-AD		1212			2	N		2									
GWM-31A-1217-EB		1240			2	N		2									
GWM-58A-1217		1046			12	N		2	1	1	1	3	1	3			
GWM-58A-F(0.2)-1217		1046			4	Y									1	3	
GWM-58A-1217-MS		1046			2	N		2									
GWM-58A-1217-MSD		1046			2	N		2									
								1	4	1	1	2	3,1	3	4	3	

680-146685 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 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:

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

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Samantha DiCenso	Golder	12/11/17 1400			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TASAV	Date/Time: 12-12-17 / 915

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

3.6°C, 2.0°C (CF) 3.2°C, 1.6°C

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SSD 2/9/18

APPENDIX C
QUALITY ASSURANCE REPORT

QUALITY ASSURANCE REPORT

QUALITY ASSURANCE REPORT

4th QUARTER 2017
ILLINOIS ROUTE 3 DRUM SITE
GROUNDWATER MONITORING
SOLUTIA INC., W.G. KRUMMRICH PLANT
SAUGET, ILLINOIS

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

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

February 2018 **140-3345**

A world of capabilities delivered locally

Golder Associates

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) completed a review of analytical data for the groundwater samples collected on December 11, 2017 at the Illinois Route 3 Drum Site (Site) associated with the Solutia Inc. (Solutia) W.G. Krummrich (WGK) plant in Sauget, Illinois. Golder collected a total of six (6) samples from groundwater monitoring wells as part of the 4th Quarter 2017 (4Q17) Illinois Route 3 Drum Site groundwater monitoring. Two (2) groundwater samples, one (1) equipment blank (EB), one (1) analytical duplicate (AD), and one (1) matrix spike/matrix spike duplicate (MS/MSD) pair were prepared. Groundwater monitoring location GM-31A is located at the Site and monitoring location GM-58A is located just north of the Site. The samples were submitted to the TestAmerica Laboratories, Inc. (TestAmerica) facility located in Cedar Falls, Iowa and 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 semi-volatile organic compounds (SVOCs), total and dissolved metals, dissolved gases, and general chemistry parameters. The analytical results were placed into one (1) sample delivery group (SDG) as described in the table below:

Sample Delivery Group (SDG)	Sample Identification
KOM039	GM-58A-1217
	GM-31A-1217
	GM-31A-1217-AD
	GM-31A-1217-EB

The samples were collected and analyzed in general accordance with the Revised Illinois Route 3 Drum Site Operation and Maintenance Plan (Work Plan) (Solutia 2008). The groundwater monitoring well samples were analyzed for SVOCs, total and dissolved metals, dissolved gases, and general chemistry parameters. The general chemistry parameters included chloride, nitrate, sulfate, total organic carbon (TOC), alkalinity, carbon dioxide, and dissolved organic carbon (DOC). One (1) EB, one (1) AD, and one (1) MS/MSD pair were submitted and analyzed for SVOCs only. 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:

- SVOCs were analyzed using USEPA SW-846 Method 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
- Total and Dissolved Iron and Manganese 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
- Free Carbon Dioxide analyzed by Method SM4500 CO2C
- Alkalinity analyzed by Method SM2320B

- 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 the Work Plan. The most recent versions of the national data validation guidelines were used for data review. The following guidelines were generally used:

- USEPA Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review, EPA-540-R-2017-002, January 2017
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540-R-2017-001, January 2017

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 SDG was prepared as a Level IV data report package containing quality control information and raw data. Golder completed Level III review of 100% of the analytical data and Level IV review of 10% of the analytical data.

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

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

Golder data qualifiers are defined below:

- D – The analyte was analyzed at a dilution
- J – The analyte was detected and the result is considered an estimated value
- JD – The analyte was analyzed at a dilution and the result is considered an estimated value
- UJ – Samples were analyzed outside of hold time, analyte was not detected

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 SEMI-VOLATILE ORGANIC COMPOUNDS

Samples were collected from two (2) groundwater monitoring locations and analyzed for SVOCs. An AD sample was collected from one (1) sampling location, GM-31A. One (1) EB was also prepared and shipped for laboratory analysis. The samples were submitted to TestAmerica, placed into one (1) data package or SDG (KOM039), and were prepared and analyzed using SW-846 Method 8270D. Samples were validated in general accordance with the functional guidelines. Results of the validation are summarized below.

2.1 Receipt Condition and Sample Holding Times

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

2.2 Blanks

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

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

One (1) EB was collected during the 4Q17 event, associated with sample GM-31A, to assess the effectiveness of the decontamination procedure. Results for the EB were non-detect.

2.3 Surrogate Spike Recoveries

Samples to be analyzed for SVOCs were spiked with surrogate compounds: 2-fluorobiphenyl, 2-fluorophenol, nitrobenzene-d5, phenol-d5, terphenyl-d14, and 2,4,6-tribromophenol, prior to analysis, to evaluate overall laboratory performance. Surrogate recoveries were within acceptance criteria; therefore, data qualification was not required.

2.4 Laboratory Control Sample Recoveries

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

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

MS/MSD samples are analyzed to determine long term precision and accuracy of the analytical method on various matrices. One (1) MS/MSD pair is sampled for every twenty (20) field samples. One (1)

MS/MSD pair was collected during the 4Q17 event associated with sample GM-58A. Results were within accuracy and precision criteria.

2.6 Analytical Duplicates

One (1) AD is collected for every ten (10) field samples to determine the overall precision of field and laboratory methods. One (1) AD was collected during the 4Q17 event associated with sample GM-31A. The relative percent difference (RPD) between the sample GM-31A and the AD, GM-31A-AD, exceeded 25% for 2-nitrobiphenyl, 2-chloronitrobenzene/4-chloronitropenzene, and 2,4,6-Trichlorophenol. Result qualifications are shown in Section 4.0.

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. Qualification of data was not required.

2.8 Results Reported From Dilutions

SVOC samples in the SDG did not require dilutions.

3.0 INORGANICS AND GENERAL CHEMISTRY

Samples were collected from two (2) groundwater monitoring locations and analyzed for inorganics and general chemistry. The samples were submitted to TestAmerica, placed into one (1) data package or SDG (KOM039), and were prepared and analyzed using the following methods:

- Total and Dissolved Iron and Manganese analyzed by USEPA Method 6010C Inductively Coupled Plasma-Atomic Emission Spectrometry
- Dissolved Gases analyzed by Method RSK-175
- Free Carbon Dioxide analyzed by Method SM4500 CO2C
- Alkalinity analyzed by Method SM2320B
- 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 checklists, and analysis dates were reviewed to verify analytical method holding times and proper preservation upon sampling. Samples were received by TestAmerica in good condition.

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; therefore, 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 GM-31A and GM-58A for various analytes. Some MS/MSD data for these samples was outside acceptance criteria. Result qualifications are shown in section 4.0

3.5 Results Reported From Dilutions

Samples in the SDG required dilutions due to high levels of target analyte sulfate. Reporting limits were adjusted to reflect the dilution. Result qualifications are shown in Section 4.0.

4.0 SUMMARY

Golder validated the data collected during the 4Q17 sampling event from the Illinois Route 3 Drum Site 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	Sulfate	D	GM-58A
Compounds analyzed at a dilution; MS/MSD %Rec outside QC limits	Sulfate	JD	GM-31A
Analyzed outside of hold time; RPD greater than 50%	Alkalinity, Carbon Dioxide, 2-Nitrobiphenyl, 2,4,6-Trichlorophenol, 2-Chloronitrobenzene/4-Chloronitrobenzene	J	GM-31A, GM-31A-AD
Analyzed outside of hold time	1,1-Biphenyl, 1-chloro-2,4-Dinitrobenzene, 1-chloro-3-Nitrobenzene, 2-Chloronitrobenzene/4-Chloronitrobenzene, 3,4-Dichloronitrobenzene, 2,4-Dichloronitrobenzene, Nitrobenzene, 3-Nitrobiphenyl, 4-Nitrobiphenyl, Pentachlorophenol	UJ	GM-31A, GM-31A-AD, GM-31A-EB, GM-58A

5.0 REFERENCES

Solutia Inc., 2008. Revised Illinois Route 3 Drum Site Operation and Maintenance Plan, W.G. Krummrich Facility, Sauget, IL, May 2008.

USEPA, 2017. Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review.

USEPA, 2017. Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review.

APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
(INCLUDING DATA VALIDATION REPORT)

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
4Q17 Route 3 Drum Site Monitoring Program

Company Name: Golder Associates
Project Name: WGK-4Q17 Drum Site
Reviewer: S. DiCenso
Laboratory: TestAmerica
SDG#: KOM039
Matrix: Water

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

Analytical Method: SVOC (8270D), Dissolved Gases (RSK-175), Metals (6010C), Alkalinity (SM 2320B), Carbon Dioxide (SM 4500 CO2C (310.1), Chloride (325.2), Nitrogen, Nitrate-Nitrite (353.2), Sulfate (375.4), TOC (415.1), and DOC (415.1)

Sample Names: GM-31A-1217, GM-31A-F(0.2)-1217, GM-31A-1217-AD, GM-31A-1217-EB, GM-58A-1217, GM-58A-F(0.2)-1217

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

Comments:

SVOC: Surrogate recovery for GM-31A-EB was outside the control limits; however, a re-extraction/re-analysis was performed outside of holding time with acceptable results. No qualification was required based on surrogate recoveries.

Dissolved Gases: No deficiencies noted.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: No deficiencies noted.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Sulfate exceeded the recovery criteria low for the MSD of sample GM-31A-MSD in batch 506969.

Samples GM-31A and GM-58A required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

Free Carbon Dioxide: 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 and 3.2°C, within the 0°C to 6°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: Due to instrument failure, samples sent to an alternate lab and were analyzed under a different method for alkalinity (SM 2320B) and free carbon dioxide (SM 4500 CO2C), which resulted in carbon dioxide analyzed outside of hold time.

Detections in diluted analysis were qualified.

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

Comments: None.

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

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

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

Comments: None.

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

Comments: Sulfate exceeded the recovery criteria low for MSD of sample GM-31A-MSD associated with batch 506969. Data was qualified accordingly.

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 GM-31A-1217-AD was submitted with SDG KOM039.

Relative Percent Difference (RPD) greater than 50% between sample and duplicate. Data was qualified accordingly.

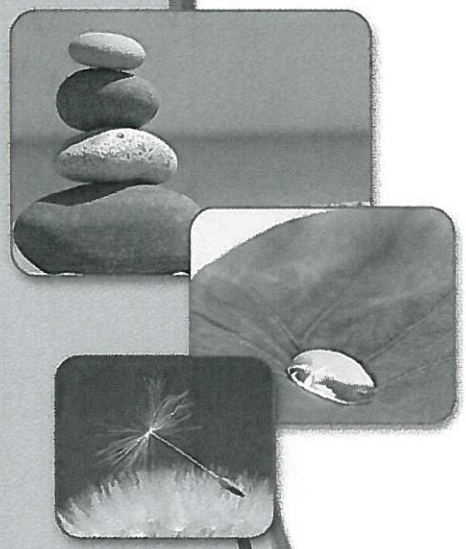
Additional Comments: None.

Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Sulfate	D	GM-58A
Compounds analyzed at a dilution; MS/MSD %Rec outside QC limits	Sulfate	JD	GM-31A
Analyzed outside of hold time; RPD greater than 50%	Alkalinity, Carbon Dioxide, 2-Nitrobiphenyl, 2,4,6-Trichlorophenol, 2-Chloronitrobenzene/4-Chloronitrobenzene	J	GM-31A, GM-31A-AD
Analyzed outside of hold time	1,1-Biphenyl, 1-chloro-2,4-Dinitrobenzene, 1-chloro-3-Nitrobenzene, 2-Chloronitrobenzene/4-Chloronitrobenzene, 3,4-Dichloronitrobenzene, 2,4-Dichloronitrobenzene, Nitrobenzene, 3-Nitrobiphenyl, 4-Nitrobiphenyl, Pentachlorophenol	UJ	GM-31A, GM-31A-AD, GM-31A-EB, GM-58A

SDG KOM039
Sample Results from:

GM-58A
GM-31A
GM-31A-AD
GM-31A-EB



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: 680-146685-1
TestAmerica Sample Delivery Group: KOM039
Client Project/Site: 4Q17 Drum Site 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:
1/10/2018 2:50:10 PM

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

SDD 2/9/18

Definitions/Glossary

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
H	Sample was prepped or analyzed beyond the specified holding time
*	ISTD response or retention time outside acceptable limits
X	Surrogate is outside control 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
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
H	Sample was prepped or analyzed beyond the specified holding time
F1	MS and/or MSD Recovery is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

SJD 2/9/18

TestAmerica Savannah

Sample Summary

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-146685-1	GM-31A-1217	Water	12/11/17 12:12	12/12/17 09:15
680-146685-2	GM-31A-F(0.2)-1217	Water	12/11/17 12:12	12/12/17 09:15
680-146685-3	GM-31A-1217-AD	Water	12/11/17 12:12	12/12/17 09:15
680-146685-4	GM-31A-1217-EB	Water	12/11/17 12:40	12/12/17 09:15
680-146685-5	GM-58A-1217	Water	12/11/17 10:46	12/12/17 09:15
680-146685-6	GM-58A-F(0.2)-1217	Water	12/11/17 10:46	12/12/17 09:15

SSD 2/9/18
TestAmerica Savannah

Job ID: 680-146685-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 4Q17 Drum Site GW Sampling-1403345

Report Number: 680-146685-1

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 12/12/2017 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 3.2° C.

SEMIVOLATILE ORGANIC COMPOUNDS (AQUEOUS)
Samples GM-31A-1217 (680-146685-1), GM-31A-1217-AD (680-146685-3), GM-31A-1217-EB (680-146685-4) and GM-58A-1217 (680-146685-5) were analyzed for Semivolatile Organic Compounds (Aqueous) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 12/14/2017 and 12/26/2017 and analyzed on 01/03/2018 and 01/06/2018.

Surrogate recovery for the following samples were outside control limits: GM-31A-1217-EB (680-146685-4) and GM-58A-1217 (680-146685-5[MSD]). Re-extraction and/or re-analysis was performed outside of holding time with acceptable results.

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

DISSOLVED GASES
Samples GM-31A-1217 (680-146685-1) and GM-58A-1217 (680-146685-5) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 12/19/2017.

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

METALS (ICP) - DISSOLVED
Samples GM-31A-F(0.2)-1217 (680-146685-2) and GM-58A-F(0.2)-1217 (680-146685-6) were analyzed for Metals (ICP) - Dissolved in accordance with EPA SW-846 Method 6010C. The samples were prepared and analyzed on 12/18/2017.

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

METALS (ICP)
Samples GM-31A-1217 (680-146685-1) and GM-58A-1217 (680-146685-5) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared and analyzed on 12/18/2017.

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

ALKALINITY
Samples GM-31A-1217 (680-146685-1) and GM-58A-1217 (680-146685-5) were analyzed for alkalinity in accordance with SM 2320B. The samples were analyzed on 12/26/2017.

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

SSD 2/9/18
TestAmerica Savannah

Job ID: 680-146685-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

CHLORIDE
Samples GM-31A-1217 (680-146685-1) and GM-58A-1217 (680-146685-5) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 12/18/2017.

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

NITRATE-NITRITE AS NITROGEN
Samples GM-31A-1217 (680-146685-1) and GM-58A-1217 (680-146685-5) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 12/12/2017.

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

SULFATE
Samples GM-31A-1217 (680-146685-1) and GM-58A-1217 (680-146685-5) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 12/18/2017.

Sulfate exceeded the recovery criteria low for the MSD of sample GM-31A-1217MSD (680-146685-1) in batch 680-506969.

Samples GM-31A-1217 (680-146685-1)[5X] and GM-58A-1217 (680-146685-5)[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.

TOTAL ORGANIC CARBON
Samples GM-31A-1217 (680-146685-1) and GM-58A-1217 (680-146685-5) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 12/14/2017.

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

DISSOLVED ORGANIC CARBON (DOC)
Samples GM-31A-F(0.2)-1217 (680-146685-2) and GM-58A-F(0.2)-1217 (680-146685-6) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 12/13/2017.

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

FREE CARBON DIOXIDE
Samples GM-31A-1217 (680-146685-1) and GM-58A-1217 (680-146685-5) were analyzed for free carbon dioxide in accordance with SM 4500 CO2 C. The samples were analyzed on 12/26/2017.

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

SSD 2/9/18

Client Sample ID: GM-31A-1217
Date Collected: 12/11/17 12:12
Date Received: 12/12/17 09:15

Lab Sample ID: 680-146685-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	9.8	U	9.8		ug/L		12/14/17 15:55	01/03/18 10:31	1
1-chloro-2,4-dinitrobenzene	9.8	U	9.8		ug/L		12/14/17 15:55	01/03/18 10:31	1
1-Chloro-3-nitrobenzene	**37**		9.8		ug/L		12/14/17 15:55	01/03/18 10:31	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		12/14/17 15:55	01/03/18 10:31	1
3,4-Dichloronitrobenzene	9.8	U	9.8		ug/L		12/14/17 15:55	01/03/18 10:31	1
2,4-Dichlorophenol	9.8	U	9.8		ug/L		12/14/17 15:55	01/03/18 10:31	1
Nitrobenzene	9.8	U	9.8		ug/L		12/14/17 15:55	01/03/18 10:31	1
2-Nitrobiphenyl	**40**		9.8		ug/L		12/14/17 15:55	01/03/18 10:31	1
3-Nitrobiphenyl	9.8	U	9.8		ug/L		12/14/17 15:55	01/03/18 10:31	1
4-Nitrobiphenyl	9.8	U	9.8		ug/L		12/14/17 15:55	01/03/18 10:31	1
Pentachlorophenol	49	U	49		ug/L		12/14/17 15:55	01/03/18 10:31	1
2,4,6-Trichlorophenol	**69**		9.8		ug/L		12/14/17 15:55	01/03/18 10:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*62*		*32 - 113*	*12/14/17 15:55*	*01/03/18 10:31*	*1*
2-Fluorophenol	*52*		*26 - 109*	*12/14/17 15:55*	*01/03/18 10:31*	*1*
Nitrobenzene-d5	*69*		*32 - 118*	*12/14/17 15:55*	*01/03/18 10:31*	*1*
Phenol-d5	*55*		*27 - 110*	*12/14/17 15:55*	*01/03/18 10:31*	*1*
Terphenyl-d14	*27*		*10 - 126*	*12/14/17 15:55*	*01/03/18 10:31*	*1*
2,4,6-Tribromophenol	*76*		*39 - 124*	*12/14/17 15:55*	*01/03/18 10:31*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	9.6	U H J	9.6		ug/L		12/26/17 14:40	01/06/18 01:23	1
1-chloro-2,4-dinitrobenzene	9.6	U H J	9.6		ug/L		12/26/17 14:40	01/06/18 01:23	1
1-Chloro-3-nitrobenzene	9.6	U H J	9.6		ug/L		12/26/17 14:40	01/06/18 01:23	1
2-chloronitrobenzene / 4-chloronitrobenzene	19	U H J	19		ug/L		12/26/17 14:40	01/06/18 01:23	1
3,4-Dichloronitrobenzene	9.6	U H J	9.6		ug/L		12/26/17 14:40	01/06/18 01:23	1
2,4-Dichlorophenol	9.6	U H J	9.6		ug/L		12/26/17 14:40	01/06/18 01:23	1
Nitrobenzene	9.6	U H J	9.6		ug/L		12/26/17 14:40	01/06/18 01:23	1
2-Nitrobiphenyl	**31**	H J	9.6		ug/L		12/26/17 14:40	01/06/18 01:23	1
3-Nitrobiphenyl	9.6	U H J	9.6		ug/L		12/26/17 14:40	01/06/18 01:23	1
4-Nitrobiphenyl	9.6	U H J	9.6		ug/L		12/26/17 14:40	01/06/18 01:23	1
Pentachlorophenol	48	U H J	48		ug/L		12/26/17 14:40	01/06/18 01:23	1
2,4,6-Trichlorophenol	**82**	H J	9.6		ug/L		12/26/17 14:40	01/06/18 01:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*67*		*32 - 113*	*12/26/17 14:40*	*01/06/18 01:23*	*1*
2-Fluorophenol	*47*		*26 - 109*	*12/26/17 14:40*	*01/06/18 01:23*	*1*
Nitrobenzene-d5	*66*		*32 - 118*	*12/26/17 14:40*	*01/06/18 01:23*	*1*
Phenol-d5	*55*		*27 - 110*	*12/26/17 14:40*	*01/06/18 01:23*	*1*
Terphenyl-d14	*28*		*10 - 126*	*12/26/17 14:40*	*01/06/18 01:23*	*1*
2,4,6-Tribromophenol	*89*		*39 - 124*	*12/26/17 14:40*	*01/06/18 01:23*	*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			12/19/17 12:40	1
Ethylene	**1.0**		1.0		ug/L			12/19/17 12:40	1
Methane	**4.4**		0.58		ug/L			12/19/17 12:40	1

SSD 2/9/18

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.30		0.050		mg/L		12/18/17 09:50	12/18/17 22:06	1
Manganese	1.3		0.010		mg/L		12/18/17 09:50	12/18/17 22:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22		1.0		mg/L			12/18/17 15:50	1
Nitrate as N	0.18		0.050		mg/L			12/12/17 19:01	1
Sulfate	65	~~F1~~ JD	25		mg/L			12/18/17 16:20	5
Total Organic Carbon	4.7		1.0		mg/L			12/14/17 14:06	1
Alkalinity as CaCO3	370	~~H~~ J	5.0		mg/L			12/26/17 19:08	1
Carbon Dioxide, Free	60	~~H~~ J	5.0		mg/L			12/26/17 09:30	1

SSD 2/9/18

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

Client Sample ID: GM-31A-F(0.2)-1217
Date Collected: 12/11/17 12:12
Date Received: 12/12/17 09:15

Lab Sample ID: 680-146685-2
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		12/18/17 09:50	12/18/17 21:52	1
Manganese, Dissolved	1.2		0.010		mg/L		12/18/17 09:50	12/18/17 21:52	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.4		1.0		mg/L			12/13/17 17:59	1

SSD 2/9/18

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

Client Sample ID: GM-31A-1217-AD
Date Collected: 12/11/17 12:12
Date Received: 12/12/17 09:15

Lab Sample ID: 680-146685-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	9.9	U	9.9		ug/L		12/14/17 15:55	01/03/18 10:55	1
1-chloro-2,4-dinitrobenzene	9.9	U	9.9		ug/L		12/14/17 15:55	01/03/18 10:55	1
1-Chloro-3-nitrobenzene	**32**		9.9		ug/L		12/14/17 15:55	01/03/18 10:55	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		12/14/17 15:55	01/03/18 10:55	1
3,4-Dichloronitrobenzene	9.9	U	9.9		ug/L		12/14/17 15:55	01/03/18 10:55	1
2,4-Dichlorophenol	9.9	U	9.9		ug/L		12/14/17 15:55	01/03/18 10:55	1
Nitrobenzene	9.9	U	9.9		ug/L		12/14/17 15:55	01/03/18 10:55	1
2-Nitrobiphenyl	**35**		9.9		ug/L		12/14/17 15:55	01/03/18 10:55	1
3-Nitrobiphenyl	9.9	U	9.9		ug/L		12/14/17 15:55	01/03/18 10:55	1
4-Nitrobiphenyl	9.9	U	9.9		ug/L		12/14/17 15:55	01/03/18 10:55	1
Pentachlorophenol	50	U	50		ug/L		12/14/17 15:55	01/03/18 10:55	1
2,4,6-Trichlorophenol	**76**		9.9		ug/L		12/14/17 15:55	01/03/18 10:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*50*		*32 - 113*	*12/14/17 15:55*	*01/03/18 10:55*	*1*
2-Fluorophenol	*47*		*26 - 109*	*12/14/17 15:55*	*01/03/18 10:55*	*1*
Nitrobenzene-d5	*56*		*32 - 118*	*12/14/17 15:55*	*01/03/18 10:55*	*1*
Phenol-d5	*44*		*27 - 110*	*12/14/17 15:55*	*01/03/18 10:55*	*1*
Terphenyl-d14	*20*		*10 - 126*	*12/14/17 15:55*	*01/03/18 10:55*	*1*
2,4,6-Tribromophenol	*65*		*39 - 124*	*12/14/17 15:55*	*01/03/18 10:55*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U H J	10		ug/L		12/26/17 14:40	01/06/18 01:48	1
1-chloro-2,4-dinitrobenzene	10	U H J	10		ug/L		12/26/17 14:40	01/06/18 01:48	1
1-Chloro-3-nitrobenzene	10	U H J	10		ug/L		12/26/17 14:40	01/06/18 01:48	1
2-chloronitrobenzene / 4-chloronitrobenzene	**21**	H J	20		ug/L		12/26/17 14:40	01/06/18 01:48	1
3,4-Dichloronitrobenzene	10	U H J	10		ug/L		12/26/17 14:40	01/06/18 01:48	1
2,4-Dichlorophenol	10	U H J	10		ug/L		12/26/17 14:40	01/06/18 01:48	1
Nitrobenzene	10	U H J	10		ug/L		12/26/17 14:40	01/06/18 01:48	1
2-Nitrobiphenyl	10	U H J	10		ug/L		12/26/17 14:40	01/06/18 01:48	1
3-Nitrobiphenyl	10	U H J	10		ug/L		12/26/17 14:40	01/06/18 01:48	1
4-Nitrobiphenyl	10	U H J	10		ug/L		12/26/17 14:40	01/06/18 01:48	1
Pentachlorophenol	50	U H J	50		ug/L		12/26/17 14:40	01/06/18 01:48	1
2,4,6-Trichlorophenol	**11**	H J	10		ug/L		12/26/17 14:40	01/06/18 01:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*79*		*32 - 113*	*12/26/17 14:40*	*01/06/18 01:48*	*1*
2-Fluorophenol	*62*		*26 - 109*	*12/26/17 14:40*	*01/06/18 01:48*	*1*
Nitrobenzene-d5	*77*		*32 - 118*	*12/26/17 14:40*	*01/06/18 01:48*	*1*
Phenol-d5	*68*		*27 - 110*	*12/26/17 14:40*	*01/06/18 01:48*	*1*
Terphenyl-d14	*33*		*10 - 126*	*12/26/17 14:40*	*01/06/18 01:48*	*1*
2,4,6-Tribromophenol	*91*		*39 - 124*	*12/26/17 14:40*	*01/06/18 01:48*	*1*

SSD 2/9/18
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

Client Sample ID: GM-31A-1217-EB
Date Collected: 12/11/17 12:40
Date Received: 12/12/17 09:15

Lab Sample ID: 680-146685-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:20	1
1-chloro-2,4-dinitrobenzene	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:20	1
1-Chloro-3-nitrobenzene	11	U *	11		ug/L		12/14/17 15:55	01/03/18 11:20	1
2-chloronitrobenzene / 4-chloronitrobenzene	23	U *	23		ug/L		12/14/17 15:55	01/03/18 11:20	1
3,4-Dichloronitrobenzene	11	U *	11		ug/L		12/14/17 15:55	01/03/18 11:20	1
2,4-Dichlorophenol	11	U *	11		ug/L		12/14/17 15:55	01/03/18 11:20	1
Nitrobenzene	11	U *	11		ug/L		12/14/17 15:55	01/03/18 11:20	1
2-Nitrobiphenyl	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:20	1
3-Nitrobiphenyl	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:20	1
4-Nitrobiphenyl	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:20	1
Pentachlorophenol	57	U	57		ug/L		12/14/17 15:55	01/03/18 11:20	1
2,4,6-Trichlorophenol	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*53*		*32 - 113*	*12/14/17 15:55*	*01/03/18 11:20*	*1*
2-Fluorophenol	*96*	*	*26 - 109*	*12/14/17 15:55*	*01/03/18 11:20*	*1*
Nitrobenzene-d5	*89*	*	*32 - 118*	*12/14/17 15:55*	*01/03/18 11:20*	*1*
Phenol-d5	*173*	*X *	*27 - 110*	*12/14/17 15:55*	*01/03/18 11:20*	*1*
Terphenyl-d14	*62*		*10 - 126*	*12/14/17 15:55*	*01/03/18 11:20*	*1*
2,4,6-Tribromophenol	*108*		*39 - 124*	*12/14/17 15:55*	*01/03/18 11:20*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	11	U H	11		ug/L		12/26/17 14:40	01/06/18 02:11	1
1-chloro-2,4-dinitrobenzene	11	U H	11		ug/L		12/26/17 14:40	01/06/18 02:11	1
1-Chloro-3-nitrobenzene	11	U H	11		ug/L		12/26/17 14:40	01/06/18 02:11	1
2-chloronitrobenzene / 4-chloronitrobenzene	22	U H	22		ug/L		12/26/17 14:40	01/06/18 02:11	1
3,4-Dichloronitrobenzene	11	U H	11		ug/L		12/26/17 14:40	01/06/18 02:11	1
2,4-Dichlorophenol	11	U H	11		ug/L		12/26/17 14:40	01/06/18 02:11	1
Nitrobenzene	11	U H	11		ug/L		12/26/17 14:40	01/06/18 02:11	1
2-Nitrobiphenyl	11	U H	11		ug/L		12/26/17 14:40	01/06/18 02:11	1
3-Nitrobiphenyl	11	U H	11		ug/L		12/26/17 14:40	01/06/18 02:11	1
4-Nitrobiphenyl	11	U H	11		ug/L		12/26/17 14:40	01/06/18 02:11	1
Pentachlorophenol	56	U H	56		ug/L		12/26/17 14:40	01/06/18 02:11	1
2,4,6-Trichlorophenol	11	U H	11		ug/L		12/26/17 14:40	01/06/18 02:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*65*		*32 - 113*	*12/26/17 14:40*	*01/06/18 02:11*	*1*
2-Fluorophenol	*54*		*26 - 109*	*12/26/17 14:40*	*01/06/18 02:11*	*1*
Nitrobenzene-d5	*68*		*32 - 118*	*12/26/17 14:40*	*01/06/18 02:11*	*1*
Phenol-d5	*58*		*27 - 110*	*12/26/17 14:40*	*01/06/18 02:11*	*1*
Terphenyl-d14	*59*		*10 - 126*	*12/26/17 14:40*	*01/06/18 02:11*	*1*
2,4,6-Tribromophenol	*76*		*39 - 124*	*12/26/17 14:40*	*01/06/18 02:11*	*1*

SJD 2/9/18

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

Client Sample ID: GM-58A-1217
Date Collected: 12/11/17 10:46
Date Received: 12/12/17 09:15

Lab Sample ID: 680-146685-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:44	1
1-chloro-2,4-dinitrobenzene	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:44	1
1-Chloro-3-nitrobenzene	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:44	1
2-chloronitrobenzene / 4-chloronitrobenzene	21	U	21		ug/L		12/14/17 15:55	01/03/18 11:44	1
3,4-Dichloronitrobenzene	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:44	1
2,4-Dichlorophenol	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:44	1
Nitrobenzene	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:44	1
2-Nitrobiphenyl	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:44	1
3-Nitrobiphenyl	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:44	1
4-Nitrobiphenyl	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:44	1
Pentachlorophenol	53	U	53		ug/L		12/14/17 15:55	01/03/18 11:44	1
2,4,6-Trichlorophenol	11	U	11		ug/L		12/14/17 15:55	01/03/18 11:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*57*		*32 - 113*	*12/14/17 15:55*	*01/03/18 11:44*	*1*
2-Fluorophenol	*48*		*26 - 109*	*12/14/17 15:55*	*01/03/18 11:44*	*1*
Nitrobenzene-d5	*61*		*32 - 118*	*12/14/17 15:55*	*01/03/18 11:44*	*1*
Phenol-d5	*49*		*27 - 110*	*12/14/17 15:55*	*01/03/18 11:44*	*1*
Terphenyl-d14	*20*		*10 - 126*	*12/14/17 15:55*	*01/03/18 11:44*	*1*
2,4,6-Tribromophenol	*64*		*39 - 124*	*12/14/17 15:55*	*01/03/18 11:44*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	11	U H 3	11		ug/L		12/26/17 14:40	01/06/18 02:36	1
1-chloro-2,4-dinitrobenzene	11	U H 3	11		ug/L		12/26/17 14:40	01/06/18 02:36	1
1-Chloro-3-nitrobenzene	11	U H 3	11		ug/L		12/26/17 14:40	01/06/18 02:36	1
2-chloronitrobenzene / 4-chloronitrobenzene	22	U H 3	22		ug/L		12/26/17 14:40	01/06/18 02:36	1
3,4-Dichloronitrobenzene	11	U H 3	11		ug/L		12/26/17 14:40	01/06/18 02:36	1
2,4-Dichlorophenol	11	U H 3	11		ug/L		12/26/17 14:40	01/06/18 02:36	1
Nitrobenzene	11	U H 3	11		ug/L		12/26/17 14:40	01/06/18 02:36	1
2-Nitrobiphenyl	11	U H 3	11		ug/L		12/26/17 14:40	01/06/18 02:36	1
3-Nitrobiphenyl	11	U H 3	11		ug/L		12/26/17 14:40	01/06/18 02:36	1
4-Nitrobiphenyl	11	U H 3	11		ug/L		12/26/17 14:40	01/06/18 02:36	1
Pentachlorophenol	54	U H 3	54		ug/L		12/26/17 14:40	01/06/18 02:36	1
2,4,6-Trichlorophenol	11	U H 3	11		ug/L		12/26/17 14:40	01/06/18 02:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*64*		*32 - 113*	*12/26/17 14:40*	*01/06/18 02:36*	*1*
2-Fluorophenol	*57*		*26 - 109*	*12/26/17 14:40*	*01/06/18 02:36*	*1*
Nitrobenzene-d5	*64*		*32 - 118*	*12/26/17 14:40*	*01/06/18 02:36*	*1*
Phenol-d5	*59*		*27 - 110*	*12/26/17 14:40*	*01/06/18 02:36*	*1*
Terphenyl-d14	*28*		*10 - 126*	*12/26/17 14:40*	*01/06/18 02:36*	*1*
2,4,6-Tribromophenol	*69*		*39 - 124*	*12/26/17 14:40*	*01/06/18 02:36*	*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			12/19/17 12:53	1
Ethylene	1.0	U	1.0		ug/L			12/19/17 12:53	1
Methane	0.58	U	0.58		ug/L			12/19/17 12:53	1

SSD 2/9/18

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.15		0.050		mg/L		12/18/17 09:50	12/18/17 22:16	1
Manganese	0.54		0.010		mg/L		12/18/17 09:50	12/18/17 22:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18		1.0		mg/L			12/18/17 15:03	1
Nitrate as N	0.25		0.050		mg/L			12/12/17 18:44	1
Sulfate	69	D	10		mg/L			12/18/17 16:18	2
Total Organic Carbon	3.3		1.0		mg/L			12/14/17 14:23	1
Alkalinity as CaCO3	440	J	5.0		mg/L			12/26/17 19:08	1
Carbon Dioxide, Free	50	J	5.0		mg/L			12/26/17 09:35	1

SSD 2/9/18

TestAmerica Savannah

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

Client Sample ID: GM-58A-F(0.2)-1217
Date Collected: 12/11/17 10:46
Date Received: 12/12/17 09:15

Lab Sample ID: 680-146685-6
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.050	U	0.050		mg/L		12/18/17 09:50	12/18/17 22:11	1
Manganese, Dissolved	**0.58**		0.010		mg/L		12/18/17 09:50	12/18/17 22:11	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	**3.6**		1.0		mg/L			12/13/17 18:18	1

SSD 2/9/18

TestAmerica Savannah

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

Lab Sample ID: MB 680-506394/13-A
Matrix: Water
Analysis Batch: 508423

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 506394

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U	10		ug/L		12/14/17 15:55	01/03/18 06:52	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		12/14/17 15:55	01/03/18 06:52	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		12/14/17 15:55	01/03/18 06:52	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		12/14/17 15:55	01/03/18 06:52	1
3,4-Dichloronitrobenzene	10	U	10		ug/L		12/14/17 15:55	01/03/18 06:52	1
2,4-Dichlorophenol	10	U	10		ug/L		12/14/17 15:55	01/03/18 06:52	1
Nitrobenzene	10	U	10		ug/L		12/14/17 15:55	01/03/18 06:52	1
2-Nitrobiphenyl	10	U	10		ug/L		12/14/17 15:55	01/03/18 06:52	1
3-Nitrobiphenyl	10	U	10		ug/L		12/14/17 15:55	01/03/18 06:52	1
4-Nitrobiphenyl	10	U	10		ug/L		12/14/17 15:55	01/03/18 06:52	1
Pentachlorophenol	50	U	50		ug/L		12/14/17 15:55	01/03/18 06:52	1
2,4,6-Trichlorophenol	10	U	10		ug/L		12/14/17 15:55	01/03/18 06:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*32 - 113*	*12/14/17 15:55*	*01/03/18 06:52*	*1*
2-Fluorophenol	*61*		*26 - 109*	*12/14/17 15:55*	*01/03/18 06:52*	*1*
Nitrobenzene-d5	*75*		*32 - 118*	*12/14/17 15:55*	*01/03/18 06:52*	*1*
Phenol-d5	*67*		*27 - 110*	*12/14/17 15:55*	*01/03/18 06:52*	*1*
Terphenyl-d14	*75*		*10 - 126*	*12/14/17 15:55*	*01/03/18 06:52*	*1*
2,4,6-Tribromophenol	*84*		*39 - 124*	*12/14/17 15:55*	*01/03/18 06:52*	*1*

Lab Sample ID: LCS 680-506394/14-A
Matrix: Water
Analysis Batch: 508423

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 506394

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	100	75.3		ug/L		75	45 - 130
2,4-Dichlorophenol	100	77.4		ug/L		77	44 - 130
Nitrobenzene	100	78.1		ug/L		78	43 - 130
Pentachlorophenol	200	179		ug/L		89	33 - 130
2,4,6-Trichlorophenol	100	79.5		ug/L		80	47 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*69*		*32 - 113*
2-Fluorophenol	*65*		*26 - 109*
Nitrobenzene-d5	*78*		*32 - 118*
Phenol-d5	*67*		*27 - 110*
Terphenyl-d14	*80*		*10 - 126*
2,4,6-Tribromophenol	*85*		*39 - 124*

Lab Sample ID: 680-146685-5 MS
Matrix: Water
Analysis Batch: 508423

Client Sample ID: GM-58A-1217
Prep Type: Total/NA
Prep Batch: 506394

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	11	U	99.7	67.6		ug/L		68	45 - 130
2,4-Dichlorophenol	11	U	99.7	66.3		ug/L		67	44 - 130

SSD 2/9/18

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

Lab Sample ID: 680-146685-5 MS
Matrix: Water
Analysis Batch: 508423

Client Sample ID: GM-58A-1217
Prep Type: Total/NA
Prep Batch: 506394

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrobenzene	11	U	99.7	69.2		ug/L		69	43 - 130
Pentachlorophenol	53	U	199	143		ug/L		72	33 - 130
2,4,6-Trichlorophenol	11	U	99.7	74.1		ug/L		71	47 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*62*		*32 - 113*
2-Fluorophenol	*53*		*26 - 109*
Nitrobenzene-d5	*62*		*32 - 118*
Phenol-d5	*54*		*27 - 110*
Terphenyl-d14	*73*		*10 - 126*
2,4,6-Tribromophenol	*75*		*39 - 124*

Lab Sample ID: 680-146685-5 MS
Matrix: Water
Analysis Batch: 508423

Client Sample ID: GM-58A-1217
Prep Type: Total/NA
Prep Batch: 506394

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*54*		*32 - 113*
2-Fluorophenol	*44*		*26 - 109*
Nitrobenzene-d5	*59*		*32 - 118*
Phenol-d5	*46*		*27 - 110*
Terphenyl-d14	*48*		*10 - 126*
2,4,6-Tribromophenol	*75*		*39 - 124*

Lab Sample ID: 680-146685-5 MSD
Matrix: Water
Analysis Batch: 508423

Client Sample ID: GM-58A-1217
Prep Type: Total/NA
Prep Batch: 506394

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1'-Biphenyl	11	U	106	68.4		ug/L		65	45 - 130	1	50
2,4-Dichlorophenol	11	U	106	68.4		ug/L		65	44 - 130	3	50
Nitrobenzene	11	U	106	75.2		ug/L		71	43 - 130	8	50
Pentachlorophenol	53	U	212	155		ug/L		73	33 - 130	8	50
2,4,6-Trichlorophenol	11	U	106	77.8		ug/L		70	47 - 130	5	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*62*		*32 - 113*
2-Fluorophenol	*50*		*26 - 109*
Nitrobenzene-d5	*64*		*32 - 118*
Phenol-d5	*61*		*27 - 110*
Terphenyl-d14	*65*		*10 - 126*
2,4,6-Tribromophenol	*76*		*39 - 124*

SSD 2/9/18
TestAmerica Savannah

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

Lab Sample ID: 680-146685-5 MSD
Matrix: Water
Analysis Batch: 508423

Client Sample ID: GM-58A-1217
Prep Type: Total/NA
Prep Batch: 506394

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorobiphenyl	52		32 - 113
2-Fluorophenol	285	X *	26 - 109
Nitrobenzene-d5	72		32 - 118
Phenol-d5	507	X *	27 - 110
Terphenyl-d14	52		10 - 126
2,4,6-Tribromophenol	87		39 - 124

Lab Sample ID: MB 680-507670/12-A
Matrix: Water
Analysis Batch: 508625

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 507670

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U	10		ug/L		12/26/17 14:40	01/06/18 00:34	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		12/26/17 14:40	01/06/18 00:34	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		12/26/17 14:40	01/06/18 00:34	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		12/26/17 14:40	01/06/18 00:34	1
3,4-Dichloronitrobenzene	10	U	10		ug/L		12/26/17 14:40	01/06/18 00:34	1
2,4-Dichlorophenol	10	U	10		ug/L		12/26/17 14:40	01/06/18 00:34	1
Nitrobenzene	10	U	10		ug/L		12/26/17 14:40	01/06/18 00:34	1
2-Nitrobiphenyl	10	U	10		ug/L		12/26/17 14:40	01/06/18 00:34	1
3-Nitrobiphenyl	10	U	10		ug/L		12/26/17 14:40	01/06/18 00:34	1
4-Nitrobiphenyl	10	U	10		ug/L		12/26/17 14:40	01/06/18 00:34	1
Pentachlorophenol	50	U	50		ug/L		12/26/17 14:40	01/06/18 00:34	1
2,4,6-Trichlorophenol	10	U	10		ug/L		12/26/17 14:40	01/06/18 00:34	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	76		32 - 113	12/26/17 14:40	01/06/18 00:34	1
2-Fluorophenol	59		26 - 109	12/26/17 14:40	01/06/18 00:34	1
Nitrobenzene-d5	72		32 - 118	12/26/17 14:40	01/06/18 00:34	1
Phenol-d5	62		27 - 110	12/26/17 14:40	01/06/18 00:34	1
Terphenyl-d14	73		10 - 126	12/26/17 14:40	01/06/18 00:34	1
2,4,6-Tribromophenol	87		39 - 124	12/26/17 14:40	01/06/18 00:34	1

Lab Sample ID: LCS 680-507670/13-A
Matrix: Water
Analysis Batch: 508625

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 507670

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	100	76.2		ug/L		76	45 - 130
2,4-Dichlorophenol	100	74.4		ug/L		74	44 - 130
Nitrobenzene	100	71.4		ug/L		71	43 - 130
Pentachlorophenol	200	189		ug/L		94	33 - 130
2,4,6-Trichlorophenol	100	84.4		ug/L		84	47 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl	67		32 - 113

SSD 2/9/18

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

Lab Sample ID: LCS 680-507670/13-A
Matrix: Water
Analysis Batch: 508625

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 507670

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*53*		*26 - 109*
Nitrobenzene-d5	*67*		*32 - 118*
Phenol-d5	*58*		*27 - 110*
Terphenyl-d14	*79*		*10 - 126*
2,4,6-Tribromophenol	*85*		*39 - 124*

Lab Sample ID: LCS 680-507670/18-A
Matrix: Water
Analysis Batch: 508625

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 507670

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1-chloro-2,4-dinitrobenzene			100	89.7		ug/L		90	51 - 130		
1-Chloro-3-nitrobenzene			100	85.2		ug/L		85	31 - 130		
3,4-Dichloronitrobenzene			100	82.9		ug/L		83	34 - 130		
2-Nitrobiphenyl			100	86.4		ug/L		86	39 - 130		
3-Nitrobiphenyl			100	91.1		ug/L		91	40 - 130		
4-Nitrobiphenyl			100	90.5		ug/L		90	39 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*59*		*32 - 113*
2-Fluorophenol	*59*		*26 - 109*
Nitrobenzene-d5	*74*		*32 - 118*
Phenol-d5	*67*		*27 - 110*
Terphenyl-d14	*76*		*10 - 126*
2,4,6-Tribromophenol	*73*		*39 - 124*

Lab Sample ID: LCSD 680-507670/19-A
Matrix: Water
Analysis Batch: 508625

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 507670

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1-chloro-2,4-dinitrobenzene			100	97.2		ug/L		97	51 - 130	8	50
1-Chloro-3-nitrobenzene			100	82.1		ug/L		82	31 - 130	4	50
3,4-Dichloronitrobenzene			100	81.6		ug/L		82	34 - 130	2	50
2-Nitrobiphenyl			100	83.9		ug/L		84	39 - 130	3	50
3-Nitrobiphenyl			100	91.6		ug/L		92	40 - 130	1	50
4-Nitrobiphenyl			100	90.5		ug/L		90	39 - 130	0	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*57*		*32 - 113*
2-Fluorophenol	*57*		*26 - 109*
Nitrobenzene-d5	*74*		*32 - 118*
Phenol-d5	*59*		*27 - 110*
Terphenyl-d14	*78*		*10 - 126*
2,4,6-Tribromophenol	*69*		*39 - 124*

SSD 2/9/18
TestAmerica Savannah

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

Lab Sample ID: 680-146685-5 MS
Matrix: Water
Analysis Batch: 508625

Client Sample ID: GM-58A-1217
Prep Type: Total/NA
Prep Batch: 507670

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl - RE	11	U H	100	80.7	H	ug/L		81	45 - 130
2,4-Dichlorophenol - RE	11	U H	100	74.2	H	ug/L		74	44 - 130
Nitrobenzene - RE	11	U H	100	122	H	ug/L		121	43 - 130
Pentachlorophenol - RE	54	U H	200	187	H	ug/L		93	33 - 130
2,4,6-Trichlorophenol - RE	11	U H	100	78.1	H	ug/L		76	47 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl - RE	*64*		*32 - 113*
2-Fluorophenol - RE	*53*		*26 - 109*
Nitrobenzene-d5 - RE	*70*		*32 - 118*
Phenol-d5 - RE	*63*		*27 - 110*
Terphenyl-d14 - RE	*40*		*10 - 126*
2,4,6-Tribromophenol - RE	*81*		*39 - 124*

Lab Sample ID: 680-146685-5 MSD
Matrix: Water
Analysis Batch: 508625

Client Sample ID: GM-58A-1217
Prep Type: Total/NA
Prep Batch: 507670

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1'-Biphenyl - RE	11	U H	107	73.7	H	ug/L		69	45 - 130	9	50
2,4-Dichlorophenol - RE	11	U H	107	72.0	H	ug/L		67	44 - 130	3	50
Nitrobenzene - RE	11	U H	107	76.2	H	ug/L		71	43 - 130	46	50
Pentachlorophenol - RE	54	U H	214	190	H	ug/L		89	33 - 130	2	50
2,4,6-Trichlorophenol - RE	11	U H	107	83.4	H	ug/L		76	47 - 130	7	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl - RE	*64*		*32 - 113*
2-Fluorophenol - RE	*47*		*26 - 109*
Nitrobenzene-d5 - RE	*69*		*32 - 118*
Phenol-d5 - RE	*55*		*27 - 110*
Terphenyl-d14 - RE	*47*		*10 - 126*
2,4,6-Tribromophenol - RE	*82*		*39 - 124*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-506930/10
Matrix: Water
Analysis Batch: 506930

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			12/19/17 10:36	1
Ethylene	1.0	U	1.0		ug/L			12/19/17 10:36	1
Methane	0.58	U	0.58		ug/L			12/19/17 10:36	1

SSD 2/9/18
TestAmerica Savannah

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

Lab Sample ID: LCS 680-506930/7
Matrix: Water
Analysis Batch: 506930

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	274		ug/L		95	75 - 125
Ethylene	269	256		ug/L		95	75 - 125
Methane	154	164		ug/L		107	75 - 125

Lab Sample ID: LCSD 680-506930/8
Matrix: Water
Analysis Batch: 506930

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	287		ug/L		99	75 - 125	5	30
Ethylene	269	268		ug/L		99	75 - 125	5	30
Methane	154	172		ug/L		112	75 - 125	5	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-506761/1-A
Matrix: Water
Analysis Batch: 506966

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 506761

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		12/18/17 09:50	12/18/17 20:56	1
Iron, Dissolved	0.050	U	0.050		mg/L		12/18/17 09:50	12/18/17 20:56	1
Manganese	0.010	U	0.010		mg/L		12/18/17 09:50	12/18/17 20:56	1
Manganese, Dissolved	0.010	U	0.010		mg/L		12/18/17 09:50	12/18/17 20:56	1

Lab Sample ID: LCS 680-506761/2-A
Matrix: Water
Analysis Batch: 506966

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 506761

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.16		mg/L		103	80 - 120
Iron, Dissolved	5.00	5.16		mg/L		103	80 - 120
Manganese	0.500	0.539		mg/L		108	80 - 120
Manganese, Dissolved	0.500	0.539		mg/L		108	80 - 120

Method: 325.2 - Chloride

Lab Sample ID: MB 680-506968/7
Matrix: Water
Analysis Batch: 506968

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			12/18/17 14:29	1

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TestAmerica Savannah

Method: 325.2 - Chloride (Continued)

Lab Sample ID: LCS 680-506968/8
Matrix: Water
Analysis Batch: 506968

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	26.1		mg/L		105	85 - 115

Lab Sample ID: LCSD 680-506968/10
Matrix: Water
Analysis Batch: 506968

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	0	30

Lab Sample ID: 680-146685-1 MS
Matrix: Water
Analysis Batch: 506968

Client Sample ID: GM-31A-1217
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	22		25.0	43.4		mg/L		85	85 - 115

Lab Sample ID: 680-146685-1 MSD
Matrix: Water
Analysis Batch: 506968

Client Sample ID: GM-31A-1217
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	22		25.0	43.6		mg/L		86	85 - 115	0	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-506217/13
Matrix: Water
Analysis Batch: 506217

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			12/12/17 18:36	1

Lab Sample ID: LCS 680-506217/16
Matrix: Water
Analysis Batch: 506217

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	0.529		mg/L		106	75 - 125
Nitrate Nitrite as N	1.00	1.02		mg/L		102	90 - 110
Nitrite as N	0.500	0.491		mg/L		98	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-506969/4
Matrix: Water
Analysis Batch: 506969

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			12/18/17 13:47	1

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QC Sample Results

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

Lab Sample ID: LCS 680-506969/5
Matrix: Water
Analysis Batch: 506969

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	19.3		mg/L		97	75 - 125

Lab Sample ID: LCSD 680-506969/7
Matrix: Water
Analysis Batch: 506969

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	18.9		mg/L		94	75 - 125	2	30

Lab Sample ID: 680-146685-1 MS
Matrix: Water
Analysis Batch: 506969

Client Sample ID: GM-31A-1217
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	65	F1	20.0	82.1		mg/L		84	75 - 125

Lab Sample ID: 680-146685-1 MSD
Matrix: Water
Analysis Batch: 506969

Client Sample ID: GM-31A-1217
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	65	F1	20.0	79.7	F1	mg/L		72	75 - 125	3	30

Method: 415.1 - DOC

Lab Sample ID: MB 680-506528/2
Matrix: Water
Analysis Batch: 506528

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			12/13/17 11:45	1

Lab Sample ID: LCS 680-506528/4
Matrix: Water
Analysis Batch: 506528

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	20.7		mg/L		104	80 - 120

Lab Sample ID: LCSD 680-506528/5
Matrix: Water
Analysis Batch: 506528

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	20.0	20.2		mg/L		101	80 - 120	3	20

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TestAmerica Savannah

Method: 415.1 - TOC

Lab Sample ID: MB 680-506527/2
Matrix: Water
Analysis Batch: 506527

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			12/14/17 08:20	1

Lab Sample ID: LCS 680-506527/3
Matrix: Water
Analysis Batch: 506527

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	18.7		mg/L		94	80 - 120

Lab Sample ID: LCSD 680-506527/4
Matrix: Water
Analysis Batch: 506527

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	20.0	18.6		mg/L		93	80 - 120	0	25

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 310-190007/1
Matrix: Water
Analysis Batch: 190007

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity as CaCO3	5.0	U	5.0		mg/L			12/26/17 19:08	1

Lab Sample ID: LCS 310-190007/2
Matrix: Water
Analysis Batch: 190007

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity as CaCO3	1060	1010		mg/L		96	90 - 110

Method: SM 4500 CO2 C - Free Carbon Dioxide

Lab Sample ID: 680-146685-5 DU
Matrix: Water
Analysis Batch: 189992

Client Sample ID: GM-58A-1217
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Carbon Dioxide, Free	50	HF	49.9		mg/L		0	23

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QC Association Summary

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

GC/MS Semi VOA

Prep Batch: 506394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1	GM-31A-1217	Total/NA	Water	3520C	
680-146685-3	GM-31A-1217-AD	Total/NA	Water	3520C	
680-146685-4	GM-31A-1217-EB	Total/NA	Water	3520C	
680-146685-5	GM-58A-1217	Total/NA	Water	3520C	
MB 680-506394/13-A	Method Blank	Total/NA	Water	3520C	
LCS 680-506394/14-A	Lab Control Sample	Total/NA	Water	3520C	
680-146685-5 MS	GM-58A-1217	Total/NA	Water	3520C	
680-146685-5 MS	GM-58A-1217	Total/NA	Water	3520C	
680-146685-5 MSD	GM-58A-1217	Total/NA	Water	3520C	
680-146685-5 MSD	GM-58A-1217	Total/NA	Water	3520C	

Prep Batch: 507670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1 - RE	GM-31A-1217	Total/NA	Water	3520C	
680-146685-3 - RE	GM-31A-1217-AD	Total/NA	Water	3520C	
680-146685-4 - RE	GM-31A-1217-EB	Total/NA	Water	3520C	
680-146685-5 - RE	GM-58A-1217	Total/NA	Water	3520C	
MB 680-507670/12-A	Method Blank	Total/NA	Water	3520C	
LCS 680-507670/13-A	Lab Control Sample	Total/NA	Water	3520C	
LCS 680-507670/18-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 680-507670/19-A	Lab Control Sample Dup	Total/NA	Water	3520C	
680-146685-5 MS - RE	GM-58A-1217	Total/NA	Water	3520C	
680-146685-5 MSD - RE	GM-58A-1217	Total/NA	Water	3520C	

Analysis Batch: 508423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1	GM-31A-1217	Total/NA	Water	8270D	506394
680-146685-3	GM-31A-1217-AD	Total/NA	Water	8270D	506394
680-146685-4	GM-31A-1217-EB	Total/NA	Water	8270D	506394
680-146685-5	GM-58A-1217	Total/NA	Water	8270D	506394
MB 680-506394/13-A	Method Blank	Total/NA	Water	8270D	506394
LCS 680-506394/14-A	Lab Control Sample	Total/NA	Water	8270D	506394
680-146685-5 MS	GM-58A-1217	Total/NA	Water	8270D	506394
680-146685-5 MS	GM-58A-1217	Total/NA	Water	8270D	506394
680-146685-5 MSD	GM-58A-1217	Total/NA	Water	8270D	506394
680-146685-5 MSD	GM-58A-1217	Total/NA	Water	8270D	506394

Analysis Batch: 508625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1 - RE	GM-31A-1217	Total/NA	Water	8270D	507670
680-146685-3 - RE	GM-31A-1217-AD	Total/NA	Water	8270D	507670
680-146685-4 - RE	GM-31A-1217-EB	Total/NA	Water	8270D	507670
680-146685-5 - RE	GM-58A-1217	Total/NA	Water	8270D	507670
MB 680-507670/12-A	Method Blank	Total/NA	Water	8270D	507670
LCS 680-507670/13-A	Lab Control Sample	Total/NA	Water	8270D	507670
LCS 680-507670/18-A	Lab Control Sample	Total/NA	Water	8270D	507670
LCSD 680-507670/19-A	Lab Control Sample Dup	Total/NA	Water	8270D	507670
680-146685-5 MS - RE	GM-58A-1217	Total/NA	Water	8270D	507670
680-146685-5 MSD - RE	GM-58A-1217	Total/NA	Water	8270D	507670

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QC Association Summary

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

GC VOA

Analysis Batch: 506930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1	GM-31A-1217	Total/NA	Water	RSK-175	
680-146685-5	GM-58A-1217	Total/NA	Water	RSK-175	
MB 680-506930/10	Method Blank	Total/NA	Water	RSK-175	
LCS 680-506930/7	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-506930/8	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Metals

Prep Batch: 506761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1	GM-31A-1217	Total Recoverable	Water	3005A	
680-146685-2	GM-31A-F(0.2)-1217	Dissolved	Water	3005A	
680-146685-5	GM-58A-1217	Total Recoverable	Water	3005A	
680-146685-6	GM-58A-F(0.2)-1217	Dissolved	Water	3005A	
MB 680-506761/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 680-506761/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 506966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1	GM-31A-1217	Total Recoverable	Water	6010C	506761
680-146685-2	GM-31A-F(0.2)-1217	Dissolved	Water	6010C	506761
680-146685-5	GM-58A-1217	Total Recoverable	Water	6010C	506761
680-146685-6	GM-58A-F(0.2)-1217	Dissolved	Water	6010C	506761
MB 680-506761/1-A	Method Blank	Total Recoverable	Water	6010C	506761
LCS 680-506761/2-A	Lab Control Sample	Total Recoverable	Water	6010C	506761

General Chemistry

Analysis Batch: 189992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1	GM-31A-1217	Total/NA	Water	SM 4500 CO2 C	
680-146685-5	GM-58A-1217	Total/NA	Water	SM 4500 CO2 C	
680-146685-5 DU	GM-58A-1217	Total/NA	Water	SM 4500 CO2 C	

Analysis Batch: 190007

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1	GM-31A-1217	Total/NA	Water	SM 2320B	
680-146685-5	GM-58A-1217	Total/NA	Water	SM 2320B	
MB 310-190007/1	Method Blank	Total/NA	Water	SM 2320B	
LCS 310-190007/2	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 506217

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1	GM-31A-1217	Total/NA	Water	353.2	
680-146685-5	GM-58A-1217	Total/NA	Water	353.2	
MB 680-506217/13	Method Blank	Total/NA	Water	353.2	
LCS 680-506217/16	Lab Control Sample	Total/NA	Water	353.2	

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General Chemistry (Continued)

Analysis Batch: 506527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1	GM-31A-1217	Total/NA	Water	415.1	
680-146685-5	GM-58A-1217	Total/NA	Water	415.1	
MB 680-506527/2	Method Blank	Total/NA	Water	415.1	
LCS 680-506527/3	Lab Control Sample	Total/NA	Water	415.1	
LCSD 680-506527/4	Lab Control Sample Dup	Total/NA	Water	415.1	

Analysis Batch: 506528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-2	GM-31A-F(0.2)-1217	Dissolved	Water	415.1	
680-146685-6	GM-58A-F(0.2)-1217	Dissolved	Water	415.1	
MB 680-506528/2	Method Blank	Dissolved	Water	415.1	
LCS 680-506528/4	Lab Control Sample	Dissolved	Water	415.1	
LCSD 680-506528/5	Lab Control Sample Dup	Dissolved	Water	415.1	

Analysis Batch: 506968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1	GM-31A-1217	Total/NA	Water	325.2	
680-146685-5	GM-58A-1217	Total/NA	Water	325.2	
MB 680-506968/7	Method Blank	Total/NA	Water	325.2	
LCS 680-506968/8	Lab Control Sample	Total/NA	Water	325.2	
LCSD 680-506968/10	Lab Control Sample Dup	Total/NA	Water	325.2	
680-146685-1 MS	GM-31A-1217	Total/NA	Water	325.2	
680-146685-1 MSD	GM-31A-1217	Total/NA	Water	325.2	

Analysis Batch: 506969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-146685-1	GM-31A-1217	Total/NA	Water	375.4	
680-146685-5	GM-58A-1217	Total/NA	Water	375.4	
MB 680-506969/4	Method Blank	Total/NA	Water	375.4	
LCS 680-506969/5	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-506969/7	Lab Control Sample Dup	Total/NA	Water	375.4	
680-146685-1 MS	GM-31A-1217	Total/NA	Water	375.4	
680-146685-1 MSD	GM-31A-1217	Total/NA	Water	375.4	

SDD 2/9/18
TestAmerica Savannah

Lab Chronicle

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

Client Sample ID: GM-31A-1217

Lab Sample ID: 680-146685-1

Date Collected: 12/11/17 12:12
Matrix: Water
Date Received: 12/12/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			1017.2 mL	1 mL	506394	12/14/17 15:55	CEW	TAL SAV
Total/NA	Analysis	8270D		1	1 mL	1.0 mL	508423	01/03/18 10:31	KNW	TAL SAV
Total/NA	Prep	3520C	RE		1046.6 mL	1 mL	507670	12/26/17 14:40	CEW	TAL SAV
Total/NA	Analysis	8270D	RE	1	1 mL	1.0 mL	508625	01/06/18 01:23	KNW	TAL SAV
Total/NA	Analysis	RSK-175		1	17 mL	17 mL	506930	12/19/17 12:40	KAB	TAL SAV
Total Recoverable	Prep	3005A			50 mL	50 mL	506761	12/18/17 09:50	AJR	TAL SAV
Total Recoverable	Analysis	6010C		1			506966	12/18/17 22:06	BCB	TAL SAV
Total/NA	Analysis	325.2		1	2 mL	2 mL	506968	12/18/17 15:50	ALG	TAL SAV
Total/NA	Analysis	353.2		1	2 mL	2 mL	506217	12/12/17 19:01	AMH	TAL SAV
Total/NA	Analysis	375.4		5	2 mL	2 mL	506969	12/18/17 16:20	ALG	TAL SAV
Total/NA	Analysis	415.1		1	40 mL	40 mL	506527	12/14/17 14:06	KLD	TAL SAV
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	190007	12/26/17 19:08	BER	TAL CF
Total/NA	Analysis	SM 4500 CO2 C		1	100 mL	100 mL	189992	12/26/17 09:30	LBB	TAL CF

Client Sample ID: GM-31A-F(0.2)-1217

Lab Sample ID: 680-146685-2

Date Collected: 12/11/17 12:12
Matrix: Water
Date Received: 12/12/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	506761	12/18/17 09:50	AJR	TAL SAV
Dissolved	Analysis	6010C		1			506966	12/18/17 21:52	BCB	TAL SAV
Dissolved	Analysis	415.1		1			506528	12/13/17 17:59	KLD	TAL SAV

Client Sample ID: GM-31A-1217-AD

Lab Sample ID: 680-146685-3

Date Collected: 12/11/17 12:12
Matrix: Water
Date Received: 12/12/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			1008 mL	1 mL	506394	12/14/17 15:55	CEW	TAL SAV
Total/NA	Analysis	8270D		1	1 mL	1.0 mL	508423	01/03/18 10:55	KNW	TAL SAV
Total/NA	Prep	3520C	RE		999.4 mL	1 mL	507670	12/26/17 14:40	CEW	TAL SAV
Total/NA	Analysis	8270D	RE	1	1 mL	1.0 mL	508625	01/06/18 01:48	KNW	TAL SAV

Client Sample ID: GM-31A-1217-EB

Lab Sample ID: 680-146685-4

Date Collected: 12/11/17 12:40
Matrix: Water
Date Received: 12/12/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			883.4 mL	1 mL	506394	12/14/17 15:55	CEW	TAL SAV
Total/NA	Analysis	8270D		1	1 mL	1.0 mL	508423	01/03/18 11:20	KNW	TAL SAV
Total/NA	Prep	3520C	RE		896 mL	1 mL	507670	12/26/17 14:40	CEW	TAL SAV
Total/NA	Analysis	8270D	RE	1	1 mL	1.0 mL	508625	01/06/18 02:11	KNW	TAL SAV

SSD 2/9/18
TestAmerica Savannah

Lab Chronicle

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

Client Sample ID: GM-58A-1217

Date Collected: 12/11/17 10:46
Date Received: 12/12/17 09:15

Lab Sample ID: 680-146685-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			943.3 mL	1 mL	506394	12/14/17 15:55	CEW	TAL SAV
Total/NA	Analysis	8270D		1	1 mL	1.0 mL	508423	01/03/18 11:44	KNW	TAL SAV
Total/NA	Prep	3520C	RE		927.1 mL	1 mL	507670	12/26/17 14:40	CEW	TAL SAV
Total/NA	Analysis	8270D	RE	1	1 mL	1.0 mL	508625	01/06/18 02:36	KNW	TAL SAV
Total/NA	Analysis	RSK-175		1	17 mL	17 mL	506930	12/19/17 12:53	KAB	TAL SAV
Total Recoverable	Prep	3005A			50 mL	50 mL	506761	12/18/17 09:50	AJR	TAL SAV
Total Recoverable	Analysis	6010C		1			506966	12/18/17 22:16	BCB	TAL SAV
Total/NA	Analysis	325.2		1	2 mL	2 mL	506968	12/18/17 15:03	ALG	TAL SAV
Total/NA	Analysis	353.2		1	2 mL	2 mL	506217	12/12/17 18:44	AMH	TAL SAV
Total/NA	Analysis	375.4		2	2 mL	2 mL	506969	12/18/17 16:18	ALG	TAL SAV
Total/NA	Analysis	415.1		1	40 mL	40 mL	506527	12/14/17 14:23	KLD	TAL SAV
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	190007	12/26/17 19:08	BER	TAL CF
Total/NA	Analysis	SM 4500 CO2 C		1	50 mL	50 mL	189992	12/26/17 09:35	LBB	TAL CF

Client Sample ID: GM-58A-F(0.2)-1217

Date Collected: 12/11/17 10:46
Date Received: 12/12/17 09:15

Lab Sample ID: 680-146685-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	506761	12/18/17 09:50	AJR	TAL SAV
Dissolved	Analysis	6010C		1			506966	12/18/17 22:11	BCB	TAL SAV
Dissolved	Analysis	415.1		1			506528	12/13/17 18:18	KLD	TAL SAV

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

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

SJD 2/9/18
TestAmerica Savannah

Accreditation/Certification Summary

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

Laboratory: TestAmerica Savannah

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Illinois	NELAP	5	200022	11-30-18

Laboratory: TestAmerica Cedar Falls

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

Authority	Program	EPA Region	Identification Number	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	IA100001 (OR)	09-29-18
Illinois	NELAP	5	200024	11-29-18
Iowa	State Program	7	007	12-01-17 *
Kansas	NELAP	7	E-10341	01-31-18
Minnesota	NELAP	5	019-999-319	12-31-18
Minnesota (Petrofund)	State Program	1	3349	08-22-18
North Dakota	State Program	8	R-186	09-29-18
Oregon	NELAP	10	IA100001	09-29-18

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

SJD 2/9/18
TestAmerica Savannah

Method Summary

Client: Solutia Inc.
Project/Site: 4Q17 Drum Site GW Sampling-1403345

TestAmerica Job ID: 680-146685-1
SDG: KOM039

Method	Method Description	Protocol	Laboratory
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
6010C	Metals (ICP)	SW846	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
SM 2320B	Alkalinity	SM	TAL CF
SM 4500 CO2 C	Free Carbon Dioxide	SM	TAL CF

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

SM = "Standard Methods For The Examination Of Water And Wastewater",

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

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

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

SSD 2/9/18
TestAmerica Savannah

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Samantha DiCenso	Date:	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: 4Q17 Drum Site GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Plant	☐ 2 days			
P O # 42262863	☐ 1 day			2 coolers

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	SVOCs by 8270	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Methane by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
GWM-31A-1217	12/11/17	1212	G	W	12	N		2	1	1	1	3	1	3			
GWM-31A-F(0.2)-1217		1212			4	Y									1	3	
GWM-31A-1217-AD		1212			2	N		2									
GWM-31A-1217-EB		1240			2	N		2									
GWM-58A-1217		1046			12	N		2	1	1	1	3	1	3			
GWM-58A-F(0.2)-1217		1046			4	Y									1	3	
GWM-58A-1217-MS		1046			2	N		2									
GWM-58A-1217-MSD		1046			2	N		2									
								1	4	1	1	2	3,1	3	4	3	

680-146685 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 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:

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

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Samantha DiCenso	Golder	12/11/17 1400			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TASAV	Date/Time: 12-12-17 / 915

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

3.6°C, 2.0°C (CF) 3.2°C, 1.6°C

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680-146685 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: TA- Savannah			
City/State: CITY Savannah STATE GA		Project:	
Receipt Information			
Date/Time Received: DATE 12/23/17 TIME 1005		Received By: MRH	
Delivery Type: ☐ UPS ☒ FedEx Sat Del ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? ☒ Yes ☐ No		*If yes:* Cooler ID:	
Multiple Coolers? ☐ Yes ☒ No		*If yes:* Cooler # _____ of _____	
Cooler Custody Seals Present? ☒ Yes ~~☒ No~~ MRH 12/23/17		*If yes:* Cooler custody seals intact? ☒ Yes ☐ No	
Sample Custody Seals Present? ☐ Yes ☒ No		*If yes:* Sample custody seals intact? ☐ Yes ☐ No	
Trip Blank Present? ☐ Yes ☒ No		*If yes:* Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE			
Thermometer ID: J		Correction Factor (°C): +0.1	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): 0.3		Corrected Temp (°C): 0.4	
• Sample Container Temperature			
Sample ID(s) & bottle type used: CONTAINER 1		CONTAINER 2	
Uncorrected Temp (°C): TEMP 1	TEMP 2	Corrected Temp (°C): TEMP 1	TEMP 2
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No			
a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

680-146685 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information					
Client: TA- Savannah					
City/State: Savannah GA			Project:		
Receipt Information					
Date/Time Received: 12/23/17 1005			Received By: MRH		
Delivery Type: ☐ UPS	☒ FedEx Sat Del	☐ FedEx Ground	☐ US Mail	☐ Spee-Dee	
☐ TA Courier	☐ TA Field Services	☐ Client Drop-off	☐ Other:		
Condition of Cooler/Containers					
Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:		
Multiple Coolers?	☐ Yes	☒ No	*If yes:* Cooler # ____ of ____		
Cooler Custody Seals Present?	☒ Yes	~~☒ No~~ MRH 12/23/17	*If yes:* Cooler custody seals intact?	☒ Yes	☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact?	☐ Yes	☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓		
Temperature Record					
Coolant: ☒ Wet ice	☐ Blue ice	☐ Dry ice	☐ Other:	☐ NONE	
Thermometer ID: J			Correction Factor (°C): +0.1		
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature					
Uncorrected Temp (°C): 0.3			Corrected Temp (°C): 0.4		
• Sample Container Temperature					
Sample ID(s) & bottle type used:	CONTAINER 1		CONTAINER 2		
Uncorrected Temp (°C):	TEMP 1	TEMP 2	Corrected Temp (°C):	TEMP 1	TEMP 2
Exceptions Noted					
1) If temperature exceeds criteria, was sample(s) received same day of sampling?				☐ Yes	☐ No
a) *If yes:* Is there evidence that the chilling process began?				☐ Yes	☐ No
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?)				☐ Yes	☐ No
NOTE: If yes, contact PM before proceeding. If no, proceed with login					
Additional Comments					

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Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-146685-1
SDG Number: KOM039

Login Number: 146685
List Number: 1
Creator: Anderson, Jordan K

List Source: TestAmerica Savannah

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

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Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-146685-1
SDG Number: KOM039

Login Number: 146685
List Number: 2
Creator: Hummel, Matt R

List Source: TestAmerica Cedar Falls
List Creation: 12/23/17 10:40 AM

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

SJD 2/9/18

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

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