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

Tel: 314-674-3312
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gmrina@eastman.com

April 24, 2017

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

Re: Route 3 Drum Site Groundwater Monitoring Program
1st 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 1st Quarter 2017 Data Report for Solutia Inc.'s W. G. Krummrich Plant, Sauget, IL.

As noted in my e-mail dated January 31, 2017, Solutia will very shortly submit a "Periodic Technical Review" recommending changes to this groundwater monitoring program, along with similar Reviews for the other programs.

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
1st 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

A world of capabilities delivered locally

GROUNDWATER MONITORING REPORT

1st 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

April 2017 **140-3345**

Golder Associates

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) is pleased to submit this report summarizing the 1st Quarter 2017 (1Q17) 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 1Q17 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-chloronitrobenzene, 3-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 1Q17 sampling activities on February 7, 2017. Activities were performed in general accordance with the Work Plan.

2.1 Water Level Measurement

Prior to sampling during the 1Q17 event, Golder performed a synoptic round of water level and total depth measurements at 76 monitoring wells and piezometers on January 26 and January 27, 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 1Q17 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 1Q17 well gauging information is shown on Table 1.

2.2 Groundwater Sample Collection

Monitoring wells sampled during the 1Q17 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 YSI 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 and carbon dioxide (USEPA Method 310.1), chloride (USEPA Method 352.5), total and dissolved iron and total and dissolved manganese (USEPA SW-846 Method 6010C), methane, ethane and ethylene (RSK-175), nitrate (USEPA Method 353.2), sulfate (USEPA Method 375.4), and total and dissolved organic carbon (USEPA Method 415.1)

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 1Q17 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.: February (1st Quarter), 2017 (0217)
- **“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 Savannah, Georgia.

2.4 Decontamination and Investigation Derived Waste

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

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

3.0 QUALITY ASSURANCE

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

Sample Delivery Group (SDG)	Sample Identification
KOM036	GM-58A-0217
	GM-31A-0217
	GM-31A-0217-AD
	GM-31A-0217-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 Superfund Organic Methods Data Review, EPA-540-R-08-01, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010

Although some data required qualifications due to quality control criteria that were not achieved, the data were deemed usable. 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 wells GM-58A or GM-31A during the 1Q17 sampling event. 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.

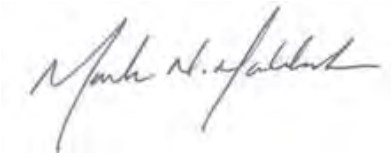
5.0 CLOSING

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.

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



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

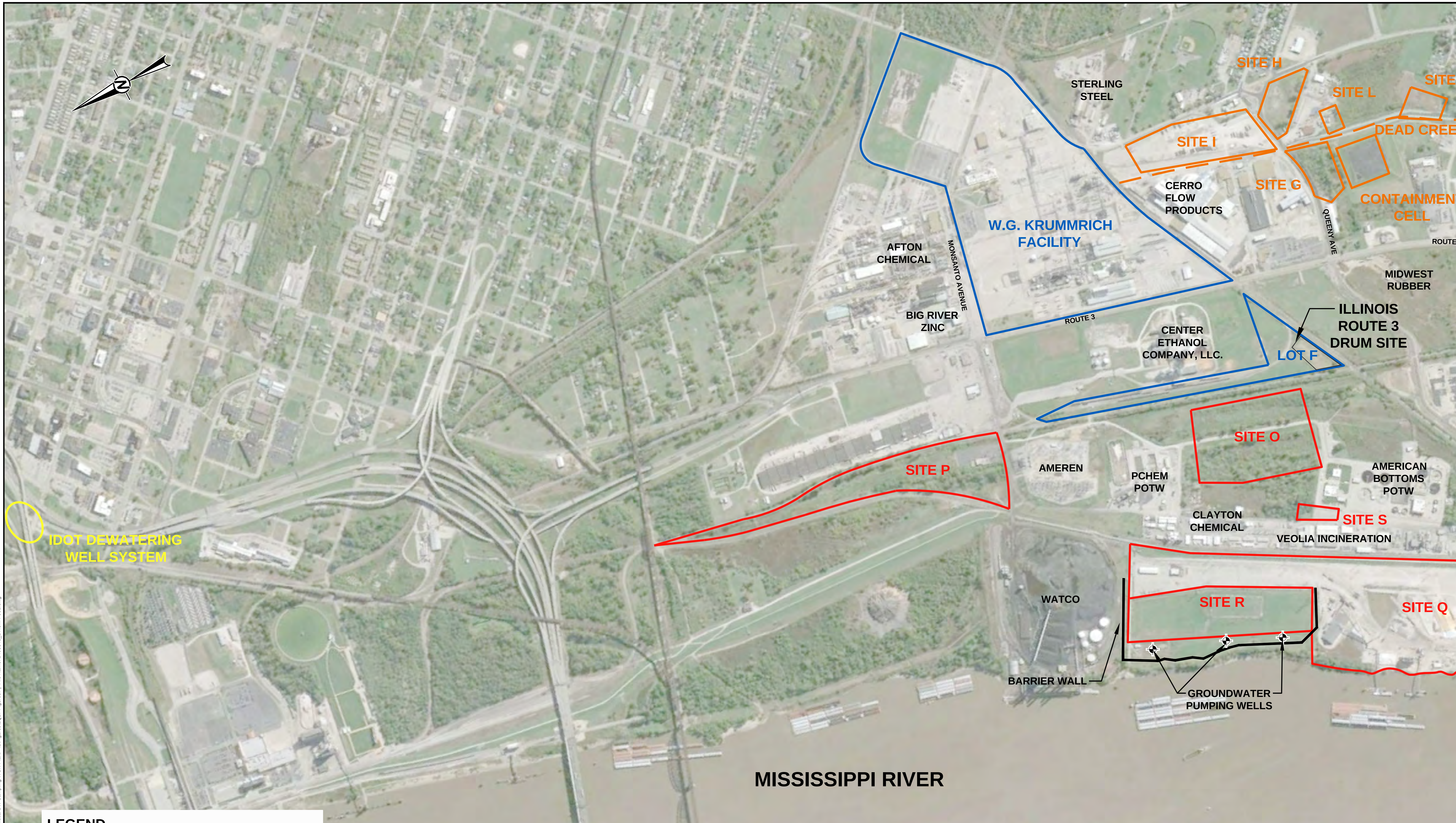
6.0 REFERENCES

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

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

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

FIGURES



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

PROJECT
ILLINOIS ROUTE 3 DRUM SITE GROUNDWATER SAMPLING
1ST QUARTER 2017 DATA REPORT

CONSULTANT
Golder Associates

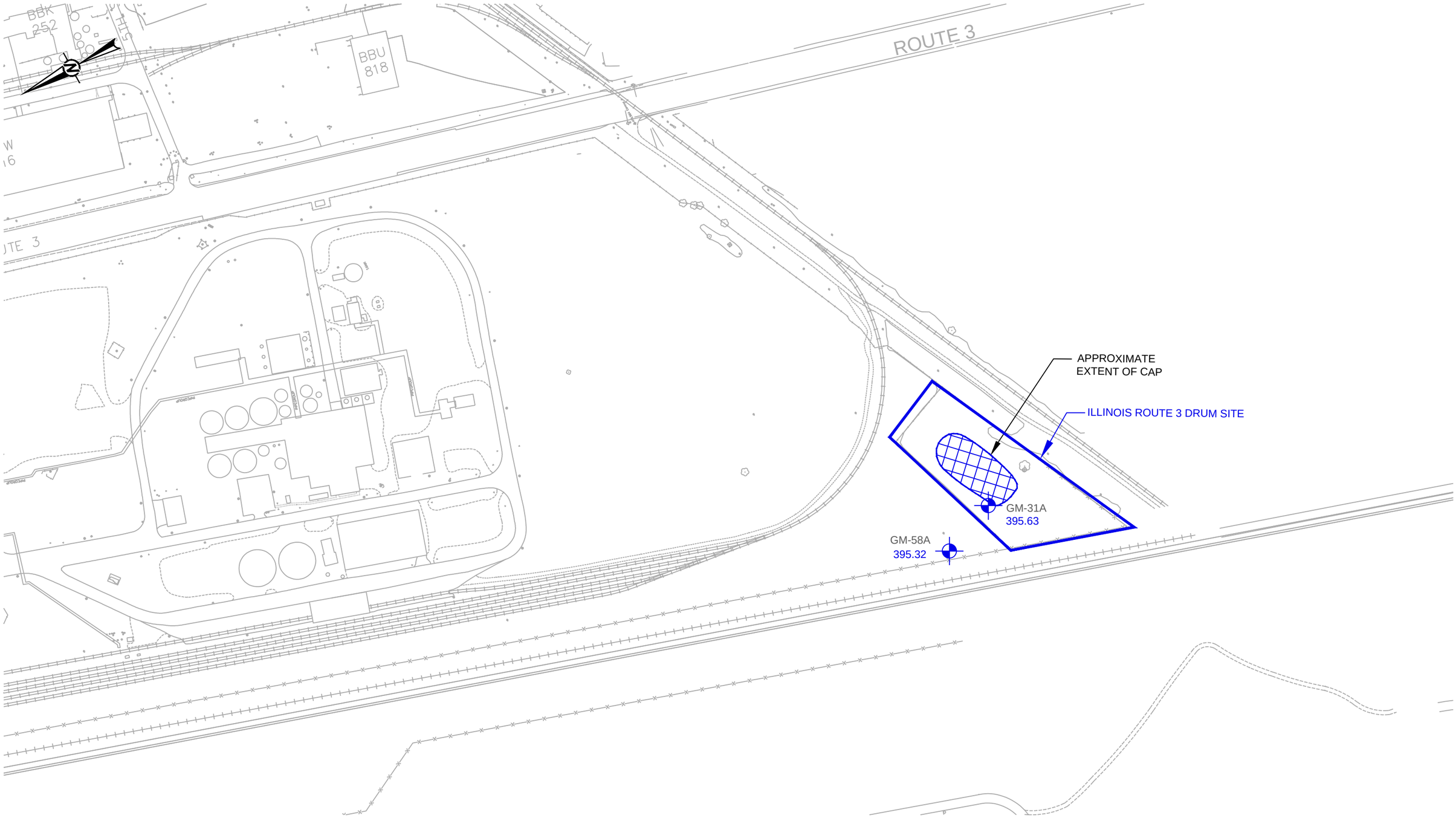
YYYY-MM-DD	2017-03-27
PREPARED	TJG
DESIGN	TJG
REVIEW	AWD
APPROVED	KMB

TITLE
SITE LOCATION MAP

PROJECT No.	PHASE	Rev.	FIGURE
140-3345	0042	0	1

Path: \\stlouis\common\Projects\140 Projects\1403345 - Solutia GW Sampling WGK Plant - IL\Figures\1Q17 Figures\ | File Name: 1403345_DRUM F001.dwg

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



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	2017-03-27
PREPARED	TJG
DESIGN	TJG
REVIEW	AWD
APPROVED	KMB

PROJECT
ILLINOIS ROUTE 3 DRUM SITE GROUNDWATER SAMPLING
1ST QUARTER 2017 DATA REPORT

TITLE
MONITORING WELL LOCATIONS AND GROUNDWATER ELEVATION MAP

PROJECT No.	PHASE	Rev.	FIGURE
140-3345	0042	0	2

Path: \\atlus\common\Projects\140 Projects\140345 - Solutia GW Sampling WGK Plant - IL\Figures\1Q17 Figures\ | File Name: 1403345_ROUTE3 DRUM SITE F002.dwg

TABLES

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

Well Identification	Monitoring Well Construction Data						1Q17 - January 27, 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	23.00	NP	39.67	395.63
GM-58A	412.24	414.24	19.40	39.40	392.84	372.84	18.92	NP	40.78	395.32

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: TJG 2/15/2017
Checked By: SJD 04/04/2017
Reviewed By: AWD 04/12/2017

Table 2
Groundwater Analytical Results
1Q17 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-0217	2/7/2017	<9.9	<9.9	<9.9	<9.9	<20	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<50
GM-31A-0217-AD	2/7/2017	<9.9	<9.9	<9.9	<9.9	<20	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<50
GM-58A-0217	2/7/2017	<10	<10	<10	<10	<20	<10	<10	<10	<10	<10	<10	<50

Notes
SVOCs - semi-volatile organic compounds
µg/L - micrograms per liter
< - result is non-detect, less than the reporting limit
AD - analytical duplicate

Prepared By: ASB 3/7/2017
Checked By: TJG 4/5/2017
Reviewed By: AWD 04/12/2017

Table 3
1Q17 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-0217	2/7/2017	300	41	32 D	0.03	<1.1	<1.0	0.0	0.30	-	0.64	-	2.1	1.3 F1	100 D	3.4	-	198.09
GM-31A-F(0.2)-0217	2/7/2017	-	-	-	-	-	-	-	-	<0.050	-	0.66	-	-	-	-	4.1	-
GM-58A-0217	2/7/2017	330	47	49 D	0.03	<1.1	<1.0	0.0	0.18	-	0.71	-	<0.58	1.1	97 D	4.5	-	86.35
GM-58A-F(0.2)-0217	2/7/2017	-	-	-	-	-	-	-	-	<0.050	-	0.71	-	-	-	-	4.3	-

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
"-" - not analyzed
D - compound analyzed at a dilution
SHU - shallow hydrogeologic unit

Prepared By: ASB 03/07/2017
Checked By: JS 04/04/2017
Reviewed By: AWD 04/12/2017

APPENDIX A
GROUNDWATER PURGING AND SAMPLING FORMS

In-Situ Inc.

2/7/2017

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	19 ft	Sample Rate	87 sec
Screen Length	20 ft	Stabilized Drawdown	0.00 ft
Depth to Water	22.55 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	13:10:01	17.05	6.94	853.54	7.98	0.04	190.19
	13:11:28	17.05	6.95	853.53	10.60	0.04	193.27
	13:12:55	17.08	6.94	850.36	6.44	0.03	194.95
	13:14:23	17.12	6.94	844.47	6.37	0.03	195.91
	13:15:50	17.16	6.94	845.69	6.16	0.03	198.09
Variance in Last 3 Readings		0.03	-0.01	-3.17	-4.16	-0.01	1.68
		0.04	0.00	-5.89	-0.07	0.00	0.96
		0.04	0.00	1.22	-0.21	0.00	2.18

Notes:

In-Situ Inc.

2/7/2017

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	19.4 ft	Sample Rate	71 sec
Screen Length	20 ft	Stabilized Drawdown	0.00 ft
Depth to Water	18.35 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	10:53:30	16.09	6.95	967.60	8.33	0.04	85.14
	10:54:41	16.00	6.95	974.77	5.80	0.03	85.50
	10:55:52	16.02	6.95	967.91	5.16	0.03	85.79
	10:57:03	16.05	6.95	972.11	4.79	0.03	86.06
	10:58:14	16.08	6.95	978.13	4.68	0.03	86.35
Variance in Last 3 Readings		0.02	0.00	-6.86	-0.64	0.00	0.29
		0.03	0.00	4.20	-0.37	0.00	0.27
		0.03	0.00	6.02	-0.11	0.00	0.29

Notes:

APPENDIX B
CHAIN-OF-CUSTODY

Chain of Custody Record

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

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: 2/7/17	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below ____			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q17 Drum Site GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42262863	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	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:
GM-31A-0217	2/7/17	1315	G	W	12	N		2	1	1	1	3	1	3			
GM-31A-F(0.2)-0217		1315			4	Y									1	3	2 coolers
GM-31A-0217-AD		1315			2	N		2									
GM-31A-0217-EB		1405			2	N		2									
GM-58A-0217		1058			12	N		2	1	1	1	3	1	3			
GM-58A-F(0.2)-0217		1058			4	Y									1	3	
GM-58A-0217-MS		1058			2	N		2									
GM-58A-0217-MSD		1058			2	N		2									
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____								1	4	1	1	2	3,1	3	4	3	

680-135094 Chain of Custody

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

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

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

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

Special Instructions/QC Requirements & Comments:

3.5/3.5 2.6/2.6

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: ____ Corr'd: ____		Therm ID No.: ____
Relinquished by: Samantha [signature]	Company: Golder	Date/Time: 2/7/17 1800	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: V. Jackson	Company: TA	Date/Time: 2-8-17 900

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

AWD 4/11/17

APPENDIX C
QUALITY ASSURANCE REPORT

QUALITY ASSURANCE REPORT

A world of capabilities delivered locally

QUALITY ASSURANCE REPORT

1st 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

April 2017 **140-3345**

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 January 27, 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 1st Quarter 2017 (1Q17) 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 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
KOM036	GM-58A-0217
	GM-31A-0217
	GM-31A-0217-AD
	GM-31A-0217-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
- Alkalinity and Free Carbon Dioxide analyzed by USEPA Method 310.1 by Titration
- Chloride analyzed by USEPA Method 325.2 by Automated Colorimetry

- Nitrogen, Nitrate analyzed by USEPA Method 353.2 by Automated Colorimetry
- Sulfate analyzed by USEPA Method 375.4 by Spectrophotometer
- Total and Dissolved Organic Carbon analyzed by USEPA Method 415.1

Golder completed validation of the analytical data following the general guidelines in 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 Superfund Organic Methods Data Review, EPA-540-R-08-01, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010

These documents are hereafter referred to as the "functional guidelines". If there was a conflict between the functional guidelines and the quality control criteria specified in the analytical method, the method-specific criteria were used. The 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

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 (KOM036), 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 1Q17 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. Some surrogate recoveries in the laboratory control sample did not meet acceptance criteria. Target analytes in the LCS were within control limits; 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 1Q17 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 1Q17 event associated with sample GM-31A. The relative percent difference (RPD) between the sample GM-31A and the AD, GM-31A-AD, did not exceed 25%; therefore, data qualification was not required.

2.7 Internal Standard Responses

Internal standard performance criteria ensure that GC/MS sensitivity and response are stable during each analysis. Internal standard area counts did not vary by more than a factor of two (2) from the associated 12 hour calibration standard. Internal standard retention times did not vary more than +/-30 seconds from the retention time of the associated 12 hour calibration standard. 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 (KOM036), 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
- Alkalinity and Free Carbon Dioxide analyzed by USEPA Method 310.1 by Titration
- Chloride analyzed by USEPA Method 325.2 by Automated Colorimetry
- Nitrogen, Nitrate analyzed by USEPA Method 353.2 by Automated Colorimetry
- Sulfate analyzed by USEPA Method 375.4 by Spectrophotometer
- Total and Dissolved Organic Carbon analyzed by USEPA Method 415.1

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

3.1 Receipt Condition and Sample Holding Times

The SDG Case Narrative, chain-of-custody, login sample receipt 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 sample GM-31A and GM-58A for various analytes.

Some MS/MSD data for these samples was outside acceptance criteria. Since MS/MSD data alone cannot be used to evaluate the precision and accuracy of data, data qualification was not required for the associated samples.

3.5 Results Reported From Dilutions

Samples in the SDG required dilutions due to high levels of target analytes chloride and 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 1Q17 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	Chloride and Sulfate	D	GM-31A and 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, 2010. Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review.

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

APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
(INCLUDING DATA VALIDATION REPORT)

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
1Q17 Route 3 Drum Site Monitoring Program

Company Name: Golder Associates
Project Name: WGK-1Q17 Drum Site
Reviewer: A. Derhake
Laboratory: TestAmerica
SDG#: KOM036
Matrix: Water

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

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

Sample Names: GM-31A-0217, GM-31A-F(0.2)-0217, GM-31A-0217-AD, GM-31A-0217-EB, GM-58A-0217, GM-58A-F(0.2)-0217

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

Comments:

SVOC: 2,4,6-tribromophenol and 2-fluorophenol exceeded recovery criteria low for LCS in prep batch 468344.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 469562.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

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

Nitrate-Nitrite as Nitrogen: Nitrate as N and Nitrate Nitrite as N exceeded the recovery criteria low for the MS and MSD of sample GM-31A in batch 468248.

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

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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

Comments: Samples were received at 2.6°C and 3.5°C, within the 4°C ± 2°C criteria.

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

Comments: Detections in diluted analysis were qualified.

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

Comments: None

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

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

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

Comments: Equipment blank for GM-31A was submitted with SDG KOM036.

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: Nitrate/Nitrite exceeded the recovery criteria low for MS and MSD of sample GM-31A associated with batch 468248. Data was not qualified on MS/MSD data alone.

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

Comments: 2,4,6-tribromophenol and 2-fluorophenol exceeded recovery criteria low for LCS in prep batch 468344.

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

Comments: 2,4,6-tribromophenol and 2-fluorophenol exceeded recovery criteria low for LCS in prep batch 468344.

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

Comments: Duplicate sample GM-31A-AD was submitted with SDG KOM036.

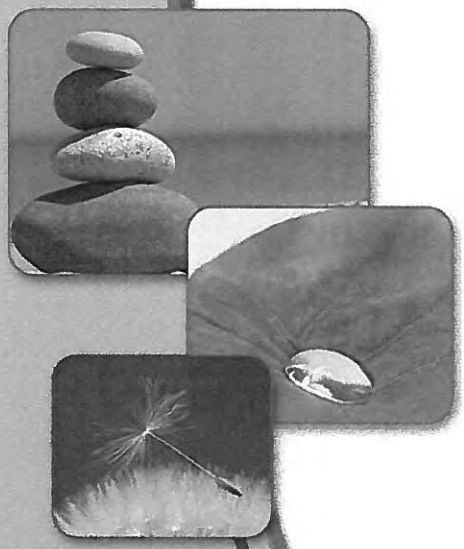
Additional Comments: None

Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Chloride and Sulfate	D	GM-31A and GM-58A

SDG KOM036
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: 680-135094-1
TestAmerica Sample Delivery Group: KOM036
Client Project/Site: 1Q17 Drum Site GW Sampling - 1403345
Revision: 1

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

Attn: Mr. Jerry Rinaldi

Kathryn Smith

Authorized for release by:
4/10/2017 3:55:10 PM

Kathryn Smith, Manager of Project Management
(912)354-7858
kathy.smith@testamericainc.com

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

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

AWP 4/11/17

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
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
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Sample Summary

Client: Solutia Inc.
Project/Site: 1Q17 Drum Site GW Sampling - 1403345

TestAmerica Job ID: 680-135094-1
SDG: KOM036

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-135094-1	GM-31A-0217	Water	02/07/17 13:15	02/08/17 09:00
680-135094-2	GM-31A-F(0.2)-0217	Water	02/07/17 13:15	02/08/17 09:00
680-135094-3	GM-31A-0217-AD	Water	02/07/17 13:15	02/08/17 09:00
680-135094-4	GM-31A-0217-EB	Water	02/07/17 14:05	02/08/17 09:00
680-135094-5	GM-58A-0217	Water	02/07/17 10:58	02/08/17 09:00
680-135094-6	GM-58A-F(0.2)-0217	Water	02/07/17 10:58	02/08/17 09:00

HWD 4/11/17
TestAmerica Savannah

Job ID: 680-135094-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE
Client: Solutia Inc.
Project: 1Q17 Drum Site GW Sampling - 1403345

Report Number: 680-135094-1

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.

This report was revised on 4/10/2017 to correct the Carbon Dioxide MB which was incorrectly reported with a detection in the method blank.

RECEIPT
The samples were received on 02/08/2017; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.6° C and 3.5° C.

SEMIVOLATILE ORGANIC COMPOUNDS (AQUEOUS)
Samples GM-31A-0217 (680-135094-1), GM-31A-0217-AD (680-135094-3), GM-31A-0217-EB (680-135094-4) and GM-58A-0217 (680-135094-5) were analyzed for Semivolatile Organic Compounds (Aqueous) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 02/09/2017 and analyzed on 02/17/2017.

2,4,6-Tribromophenol and 2-Fluorophenol surrogate recoveries for the following LCS associated with prep batch 468344 were outside control limits: (LCS 680-468344/15-A). All target analytes spiked in this LCS were within control limits; therefore, the data has been reported.

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

DISSOLVED GASES
Samples GM-31A-0217 (680-135094-1) and GM-58A-0217 (680-135094-5) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 02/20/2017.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-469562. Laboratory Control Sample and Laboratory Control Sample Duplicate were preformed to demonstrate batch precision.

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

METALS (ICP)
Samples GM-31A-F(0.2)-0217 (680-135094-2) and GM-58A-F(0.2)-0217 (680-135094-6) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/13/2017 and analyzed on 02/15/2017.

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

METALS (ICP)
Samples GM-31A-0217 (680-135094-1) and GM-58A-0217 (680-135094-5) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/13/2017 and analyzed on 02/14/2017 and 02/15/2017.

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

ALKALINITY
Samples GM-31A-0217 (680-135094-1) and GM-58A-0217 (680-135094-5) were analyzed for alkalinity in accordance with EPA Method

AWD 4/11/17

Job ID: 680-135094-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

310.1. The samples were analyzed on 02/08/2017.

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

CHLORIDE
Samples GM-31A-0217 (680-135094-1) and GM-58A-0217 (680-135094-5) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 02/13/2017.

Samples GM-31A-0217 (680-135094-1)[2X] and GM-58A-0217 (680-135094-5)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

NITRATE-NITRITE AS NITROGEN
Samples GM-31A-0217 (680-135094-1) and GM-58A-0217 (680-135094-5) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 02/08/2017.

Nitrate as N and Nitrate Nitrite as N recovered low for the MS/MSD of sample GM-31A-0217 (680-135094-1) in batch 680-468248.

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

SULFATE
Samples GM-31A-0217 (680-135094-1) and GM-58A-0217 (680-135094-5) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 02/14/2017.

Samples GM-31A-0217 (680-135094-1)[5X] and GM-58A-0217 (680-135094-5)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL ORGANIC CARBON
Samples GM-31A-0217 (680-135094-1) and GM-58A-0217 (680-135094-5) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 02/14/2017.

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)-0217 (680-135094-2) and GM-58A-F(0.2)-0217 (680-135094-6) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 02/11/2017.

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

AWD 4/11/17

Client: Solutia Inc.
Project/Site: 1Q17 Drum Site GW Sampling - 1403345

TestAmerica Job ID: 680-135094-1
SDG: KOM036

Client Sample ID: GM-31A-0217
Date Collected: 02/07/17 13:15
Date Received: 02/08/17 09:00

Lab Sample ID: 680-135094-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:09	1
1-chloro-2,4-dinitrobenzene	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:09	1
1-Chloro-3-nitrobenzene	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:09	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		02/09/17 15:47	02/17/17 19:09	1
3,4-Dichloronitrobenzene	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:09	1
2,4-Dichlorophenol	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:09	1
Nitrobenzene	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:09	1
2-Nitrobiphenyl	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:09	1
3-Nitrobiphenyl	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:09	1
4-Nitrobiphenyl	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:09	1
Pentachlorophenol	50	U	50		ug/L		02/09/17 15:47	02/17/17 19:09	1
2,4,6-Trichlorophenol	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*77*		*32 - 113*	*02/09/17 15:47*	*02/17/17 19:09*	*1*
2-Fluorophenol	*62*		*26 - 109*	*02/09/17 15:47*	*02/17/17 19:09*	*1*
Nitrobenzene-d5	*81*		*32 - 118*	*02/09/17 15:47*	*02/17/17 19:09*	*1*
Phenol-d5	*69*		*27 - 110*	*02/09/17 15:47*	*02/17/17 19:09*	*1*
Terphenyl-d14	*33*		*10 - 126*	*02/09/17 15:47*	*02/17/17 19:09*	*1*
2,4,6-Tribromophenol	*80*		*39 - 124*	*02/09/17 15:47*	*02/17/17 19:09*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/20/17 16:08	1
Ethylene	1.0	U	1.0		ug/L			02/20/17 16:08	1
Methane	**2.1**		0.58		ug/L			02/20/17 16:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**0.30**		0.050		mg/L		02/13/17 10:48	02/14/17 23:45	1
Manganese	**0.64**		0.010		mg/L		02/13/17 10:48	02/14/17 23:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**32**	D	2.0		mg/L			02/13/17 13:51	2
Nitrate as N	**1.3**	~~F1~~	0.050		mg/L			02/08/17 13:32	1
Sulfate	**100**	D	25		mg/L			02/14/17 14:02	5
Total Organic Carbon	**3.4**		1.0		mg/L			02/14/17 00:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**300**		5.0		mg/L			02/08/17 16:13	1
Carbon Dioxide, Free	**41**		5.0		mg/L			02/08/17 16:13	1

4/11/17
TestAmerica Savannah

Client: Solutia Inc.
Project/Site: 1Q17 Drum Site GW Sampling - 1403345

TestAmerica Job ID: 680-135094-1
SDG: KOM036

Client Sample ID: GM-31A-F(0.2)-0217
Date Collected: 02/07/17 13:15
Date Received: 02/08/17 09:00

Lab Sample ID: 680-135094-2
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		02/13/17 10:48	02/15/17 00:13	1
Manganese, Dissolved	**0.66**		0.010		mg/L		02/13/17 10:48	02/15/17 00:13	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	**4.1**		1.0		mg/L			02/11/17 09:56	1

KWD 4/11/17
TestAmerica Savannah

Client: Solutia Inc.
Project/Site: 1Q17 Drum Site GW Sampling - 1403345

TestAmerica Job ID: 680-135094-1
SDG: KOM036

Client Sample ID: GM-31A-0217-AD
Date Collected: 02/07/17 13:15
Date Received: 02/08/17 09:00

Lab Sample ID: 680-135094-3
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		02/09/17 15:47	02/17/17 19:30	1
1-chloro-2,4-dinitrobenzene	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:30	1
1-Chloro-3-nitrobenzene	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:30	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		02/09/17 15:47	02/17/17 19:30	1
3,4-Dichloronitrobenzene	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:30	1
2,4-Dichlorophenol	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:30	1
Nitrobenzene	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:30	1
2-Nitrobiphenyl	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:30	1
3-Nitrobiphenyl	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:30	1
4-Nitrobiphenyl	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:30	1
Pentachlorophenol	50	U	50		ug/L		02/09/17 15:47	02/17/17 19:30	1
2,4,6-Trichlorophenol	9.9	U	9.9		ug/L		02/09/17 15:47	02/17/17 19:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*72*		*32 - 113*	*02/09/17 15:47*	*02/17/17 19:30*	*1*
2-Fluorophenol	*55*		*26 - 109*	*02/09/17 15:47*	*02/17/17 19:30*	*1*
Nitrobenzene-d5	*72*		*32 - 118*	*02/09/17 15:47*	*02/17/17 19:30*	*1*
Phenol-d5	*63*		*27 - 110*	*02/09/17 15:47*	*02/17/17 19:30*	*1*
Terphenyl-d14	*32*		*10 - 126*	*02/09/17 15:47*	*02/17/17 19:30*	*1*
2,4,6-Tribromophenol	*75*		*39 - 124*	*02/09/17 15:47*	*02/17/17 19:30*	*1*

AWD 4/11/17
TestAmerica Savannah

Client: Solutia Inc.
Project/Site: 1Q17 Drum Site GW Sampling - 1403345

TestAmerica Job ID: 680-135094-1
SDG: KOM036

Client Sample ID: GM-31A-0217-EB
Date Collected: 02/07/17 14:05
Date Received: 02/08/17 09:00

Lab Sample ID: 680-135094-4
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		02/09/17 15:47	02/17/17 19:51	1
1-chloro-2,4-dinitrobenzene	9.8	U	9.8		ug/L		02/09/17 15:47	02/17/17 19:51	1
1-Chloro-3-nitrobenzene	9.8	U	9.8		ug/L		02/09/17 15:47	02/17/17 19:51	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		02/09/17 15:47	02/17/17 19:51	1
3,4-Dichloronitrobenzene	9.8	U	9.8		ug/L		02/09/17 15:47	02/17/17 19:51	1
2,4-Dichlorophenol	9.8	U	9.8		ug/L		02/09/17 15:47	02/17/17 19:51	1
Nitrobenzene	9.8	U	9.8		ug/L		02/09/17 15:47	02/17/17 19:51	1
2-Nitrobiphenyl	9.8	U	9.8		ug/L		02/09/17 15:47	02/17/17 19:51	1
3-Nitrobiphenyl	9.8	U	9.8		ug/L		02/09/17 15:47	02/17/17 19:51	1
4-Nitrobiphenyl	9.8	U	9.8		ug/L		02/09/17 15:47	02/17/17 19:51	1
Pentachlorophenol	49	U	49		ug/L		02/09/17 15:47	02/17/17 19:51	1
2,4,6-Trichlorophenol	9.8	U	9.8		ug/L		02/09/17 15:47	02/17/17 19:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*53*		*32 - 113*	*02/09/17 15:47*	*02/17/17 19:51*	*1*
2-Fluorophenol	*45*		*26 - 109*	*02/09/17 15:47*	*02/17/17 19:51*	*1*
Nitrobenzene-d5	*58*		*32 - 118*	*02/09/17 15:47*	*02/17/17 19:51*	*1*
Phenol-d5	*51*		*27 - 110*	*02/09/17 15:47*	*02/17/17 19:51*	*1*
Terphenyl-d14	*71*		*10 - 126*	*02/09/17 15:47*	*02/17/17 19:51*	*1*
2,4,6-Tribromophenol	*57*		*39 - 124*	*02/09/17 15:47*	*02/17/17 19:51*	*1*

AWD 4/11/17
TestAmerica Savannah

Client: Solutia Inc.
Project/Site: 1Q17 Drum Site GW Sampling - 1403345

TestAmerica Job ID: 680-135094-1
SDG: KOM036

Client Sample ID: GM-58A-0217
Date Collected: 02/07/17 10:58
Date Received: 02/08/17 09:00

Lab Sample ID: 680-135094-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U	10		ug/L		02/09/17 15:47	02/17/17 20:12	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		02/09/17 15:47	02/17/17 20:12	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		02/09/17 15:47	02/17/17 20:12	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		02/09/17 15:47	02/17/17 20:12	1
3,4-Dichloronitrobenzene	10	U	10		ug/L		02/09/17 15:47	02/17/17 20:12	1
2,4-Dichlorophenol	10	U	10		ug/L		02/09/17 15:47	02/17/17 20:12	1
Nitrobenzene	10	U	10		ug/L		02/09/17 15:47	02/17/17 20:12	1
2-Nitrobiphenyl	10	U	10		ug/L		02/09/17 15:47	02/17/17 20:12	1
3-Nitrobiphenyl	10	U	10		ug/L		02/09/17 15:47	02/17/17 20:12	1
4-Nitrobiphenyl	10	U	10		ug/L		02/09/17 15:47	02/17/17 20:12	1
Pentachlorophenol	50	U	50		ug/L		02/09/17 15:47	02/17/17 20:12	1
2,4,6-Trichlorophenol	10	U	10		ug/L		02/09/17 15:47	02/17/17 20:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*61*		*32 - 113*	*02/09/17 15:47*	*02/17/17 20:12*	*1*
2-Fluorophenol	*47*		*26 - 109*	*02/09/17 15:47*	*02/17/17 20:12*	*1*
Nitrobenzene-d5	*63*		*32 - 118*	*02/09/17 15:47*	*02/17/17 20:12*	*1*
Phenol-d5	*56*		*27 - 110*	*02/09/17 15:47*	*02/17/17 20:12*	*1*
Terphenyl-d14	*27*		*10 - 126*	*02/09/17 15:47*	*02/17/17 20:12*	*1*
2,4,6-Tribromophenol	*66*		*39 - 124*	*02/09/17 15:47*	*02/17/17 20:12*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/20/17 16:21	1
Ethylene	1.0	U	1.0		ug/L			02/20/17 16:21	1
Methane	0.58	U	0.58		ug/L			02/20/17 16:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**0.18**		0.050		mg/L		02/13/17 10:48	02/15/17 00:29	1
Manganese	**0.71**		0.010		mg/L		02/13/17 10:48	02/15/17 00:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**49**	D	2.0		mg/L			02/13/17 13:51	2
Nitrate as N	**1.1**		0.050		mg/L			02/08/17 13:36	1
Sulfate	**97**	D	25		mg/L			02/14/17 14:04	5
Total Organic Carbon	**4.5**		1.0		mg/L			02/14/17 00:38	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**330**		5.0		mg/L			02/08/17 16:23	1
Carbon Dioxide, Free	**47**		5.0		mg/L			02/08/17 16:23	1

AWD 4/11/17
TestAmerica Savannah

Client: Solutia Inc.
Project/Site: 1Q17 Drum Site GW Sampling - 1403345

TestAmerica Job ID: 680-135094-1
SDG: KOM036

Client Sample ID: GM-58A-F(0.2)-0217
Date Collected: 02/07/17 10:58
Date Received: 02/08/17 09:00

Lab Sample ID: 680-135094-6
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		02/13/17 10:48	02/15/17 00:35	1
Manganese, Dissolved	**0.71**		0.010		mg/L		02/13/17 10:48	02/15/17 00:35	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	**4.3**		1.0		mg/L			02/11/17 10:47	1

KWD 4/11/17
TestAmerica Savannah

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

Lab Sample ID: MB 680-468344/9-A
Matrix: Water
Analysis Batch: 469419

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U	10		ug/L		02/09/17 15:47	02/17/17 18:47	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		02/09/17 15:47	02/17/17 18:47	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		02/09/17 15:47	02/17/17 18:47	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		02/09/17 15:47	02/17/17 18:47	1
3,4-Dichloronitrobenzene	10	U	10		ug/L		02/09/17 15:47	02/17/17 18:47	1
2,4-Dichlorophenol	10	U	10		ug/L		02/09/17 15:47	02/17/17 18:47	1
Nitrobenzene	10	U	10		ug/L		02/09/17 15:47	02/17/17 18:47	1
2-Nitrobiphenyl	10	U	10		ug/L		02/09/17 15:47	02/17/17 18:47	1
3-Nitrobiphenyl	10	U	10		ug/L		02/09/17 15:47	02/17/17 18:47	1
4-Nitrobiphenyl	10	U	10		ug/L		02/09/17 15:47	02/17/17 18:47	1
Pentachlorophenol	50	U	50		ug/L		02/09/17 15:47	02/17/17 18:47	1
2,4,6-Trichlorophenol	10	U	10		ug/L		02/09/17 15:47	02/17/17 18:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*69*		*32 - 113*	*02/09/17 15:47*	*02/17/17 18:47*	*1*
2-Fluorophenol	*59*		*26 - 109*	*02/09/17 15:47*	*02/17/17 18:47*	*1*
Nitrobenzene-d5	*72*		*32 - 118*	*02/09/17 15:47*	*02/17/17 18:47*	*1*
Phenol-d5	*64*		*27 - 110*	*02/09/17 15:47*	*02/17/17 18:47*	*1*
Terphenyl-d14	*90*		*10 - 126*	*02/09/17 15:47*	*02/17/17 18:47*	*1*
2,4,6-Tribromophenol	*76*		*39 - 124*	*02/09/17 15:47*	*02/17/17 18:47*	*1*

Lab Sample ID: LCS 680-468344/10-A
Matrix: Water
Analysis Batch: 469419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	100	82.2		ug/L		82	45 - 130
2,4-Dichlorophenol	100	77.2		ug/L		77	44 - 130
Nitrobenzene	100	72.8		ug/L		73	43 - 130
Pentachlorophenol	200	179		ug/L		90	33 - 130
2,4,6-Trichlorophenol	100	85.6		ug/L		86	47 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*75*		*32 - 113*
2-Fluorophenol	*59*		*26 - 109*
Nitrobenzene-d5	*73*		*32 - 118*
Phenol-d5	*72*		*27 - 110*
Terphenyl-d14	*87*		*10 - 126*
2,4,6-Tribromophenol	*82*		*39 - 124*

Lab Sample ID: LCS 680-468344/15-A
Matrix: Water
Analysis Batch: 469419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1-chloro-2,4-dinitrobenzene	100	83.8		ug/L		84	51 - 130
1-Chloro-3-nitrobenzene	100	77.2		ug/L		77	31 - 130

4/11/17
TestAmerica Savannah

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

Lab Sample ID: LCS 680-468344/15-A
Matrix: Water
Analysis Batch: 469419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-chloronitrobenzene / 4-chloronitrobenzene	200	159		ug/L		80	34 - 130
3,4-Dichloronitrobenzene	100	79.7		ug/L		80	34 - 130
2-Nitrobiphenyl	100	89.5		ug/L		90	39 - 130
3-Nitrobiphenyl	100	92.8		ug/L		93	40 - 130
4-Nitrobiphenyl	100	90.7		ug/L		91	39 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*78*		*32 - 113*
2-Fluorophenol	*13*	*X*	*26 - 109*
Nitrobenzene-d5	*71*		*32 - 118*
Phenol-d5	*54*		*27 - 110*
Terphenyl-d14	*88*		*10 - 126*
2,4,6-Tribromophenol	*22*	*X*	*39 - 124*

Lab Sample ID: 680-135094-5 MS
Matrix: Water
Analysis Batch: 469419

Client Sample ID: GM-58A-0217-MS
Prep Type: Total/NA
Prep Batch: 468344

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	10	U	99.4	57.2		ug/L		58	45 - 130
2,4-Dichlorophenol	10	U	99.4	70.5		ug/L		71	44 - 130
Nitrobenzene	10	U	99.4	70.8		ug/L		69	43 - 130
Pentachlorophenol	50	U	199	184		ug/L		91	33 - 130
2,4,6-Trichlorophenol	10	U	99.4	79.8		ug/L		74	47 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*61*		*32 - 113*
2-Fluorophenol	*52*		*26 - 109*
Nitrobenzene-d5	*68*		*32 - 118*
Phenol-d5	*63*		*27 - 110*
Terphenyl-d14	*66*		*10 - 126*
2,4,6-Tribromophenol	*80*		*39 - 124*

Lab Sample ID: 680-135094-5 MS
Matrix: Water
Analysis Batch: 469419

Client Sample ID: GM-58A-0217-MS
Prep Type: Total/NA
Prep Batch: 468344

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1-chloro-2,4-dinitrobenzene	10	U	99.6	71.7		ug/L		72	51 - 130
1-Chloro-3-nitrobenzene	10	U	99.6	58.6		ug/L		59	31 - 130
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	199	129		ug/L		65	34 - 130
3,4-Dichloronitrobenzene	10	U	99.6	61.1		ug/L		61	34 - 130
2-Nitrobiphenyl	10	U	99.6	71.0		ug/L		66	39 - 130
3-Nitrobiphenyl	10	U	99.6	73.0		ug/L		73	40 - 130
4-Nitrobiphenyl	10	U	99.6	72.6		ug/L		73	39 - 130

AWD 4/11/17
TestAmerica Savannah

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

Lab Sample ID: 680-135094-5 MS
Matrix: Water
Analysis Batch: 469419

Client Sample ID: GM-58A-0217-MS
Prep Type: Total/NA
Prep Batch: 468344

Surrogate	MS %Recovery	MS Qualifier	Limits
2-Fluorobiphenyl	55		32 - 113
2-Fluorophenol	48		26 - 109
Nitrobenzene-d5	64		32 - 118
Phenol-d5	53		27 - 110
Terphenyl-d14	41		10 - 126
2,4,6-Tribromophenol	67		39 - 124

Lab Sample ID: 680-135094-5 MSD
Matrix: Water
Analysis Batch: 469419

Client Sample ID: GM-58A-0217-MSD
Prep Type: Total/NA
Prep Batch: 468344

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1'-Biphenyl	10	U	101	70.0		ug/L		69	45 - 130	20	50
2,4-Dichlorophenol	10	U	101	73.1		ug/L		72	44 - 130	4	50
Nitrobenzene	10	U	101	75.4		ug/L		73	43 - 130	6	50
Pentachlorophenol	50	U	202	168		ug/L		82	33 - 130	9	50
2,4,6-Trichlorophenol	10	U	101	83.1		ug/L		77	47 - 130	4	50

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorobiphenyl	66		32 - 113
2-Fluorophenol	57		26 - 109
Nitrobenzene-d5	69		32 - 118
Phenol-d5	70		27 - 110
Terphenyl-d14	74		10 - 126
2,4,6-Tribromophenol	75		39 - 124

Lab Sample ID: 680-135094-5 MSD
Matrix: Water
Analysis Batch: 469419

Client Sample ID: GM-58A-0217-MSD
Prep Type: Total/NA
Prep Batch: 468344

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1-chloro-2,4-dinitrobenzene	10	U	105	106		ug/L		100	51 - 130	38	50
1-Chloro-3-nitrobenzene	10	U	105	92.1		ug/L		88	31 - 130	44	50
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	210	198		ug/L		94	34 - 130	42	50
3,4-Dichloronitrobenzene	10	U	105	93.7		ug/L		89	34 - 130	42	50
2-Nitrobiphenyl	10	U	105	101		ug/L		91	39 - 130	35	50
3-Nitrobiphenyl	10	U	105	99.6		ug/L		95	40 - 130	31	50
4-Nitrobiphenyl	10	U	105	99.8		ug/L		95	39 - 130	32	50

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorobiphenyl	59		32 - 113
2-Fluorophenol	49		26 - 109
Nitrobenzene-d5	64		32 - 118
Phenol-d5	52		27 - 110
Terphenyl-d14	73		10 - 126
2,4,6-Tribromophenol	71		39 - 124

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Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-469562/11
Matrix: Water
Analysis Batch: 469562

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/20/17 14:01	1
Ethylene	1.0	U	1.0		ug/L			02/20/17 14:01	1
Methane	0.58	U	0.58		ug/L			02/20/17 14:01	1
Methane (TCD)	390	U	390		ug/L			02/20/17 14:01	1

Lab Sample ID: LCS 680-469562/3
Matrix: Water
Analysis Batch: 469562

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	251		ug/L		87	75 - 125
Ethylene	269	235		ug/L		87	75 - 125
Methane	154	132		ug/L		86	75 - 125

Lab Sample ID: LCS 680-469562/6
Matrix: Water
Analysis Batch: 469562

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	1920	2010		ug/L		104	75 - 125

Lab Sample ID: LCSD 680-469562/4
Matrix: Water
Analysis Batch: 469562

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	262		ug/L		91	75 - 125	4	30
Ethylene	269	243		ug/L		90	75 - 125	4	30
Methane	154	137		ug/L		89	75 - 125	4	30

Lab Sample ID: LCSD 680-469562/7
Matrix: Water
Analysis Batch: 469562

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	1920	1860		ug/L		97	75 - 125	8	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-468750/1-A
Matrix: Water
Analysis Batch: 469073

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 468750

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		02/13/17 10:48	02/14/17 23:34	1
Iron, Dissolved	0.050	U	0.050		mg/L		02/13/17 10:48	02/14/17 23:34	1
Manganese	0.010	U	0.010		mg/L		02/13/17 10:48	02/14/17 23:34	1
Manganese, Dissolved	0.010	U	0.010		mg/L		02/13/17 10:48	02/14/17 23:34	1

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

Lab Sample ID: LCS 680-468750/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 469073 — **Prep Batch: 468750**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	4.94		mg/L		99	80 - 120
Iron, Dissolved	5.00	4.94		mg/L		99	80 - 120
Manganese	0.500	0.515		mg/L		103	80 - 120
Manganese, Dissolved	0.500	0.515		mg/L		103	80 - 120

Lab Sample ID: 680-135094-1 MS — **Client Sample ID: GM-31A-0217**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 469073 — **Prep Batch: 468750**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	0.30		5.00	5.35		mg/L		101	75 - 125
Iron, Dissolved	0.30		5.00	5.35		mg/L		101	75 - 125
Manganese	0.64		0.500	1.19		mg/L		109	75 - 125
Manganese, Dissolved	0.64		0.500	1.19		mg/L		109	75 - 125

Lab Sample ID: 680-135094-1 MSD — **Client Sample ID: GM-31A-0217**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 469073 — **Prep Batch: 468750**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	0.30		5.00	5.26		mg/L		99	75 - 125	2	20
Iron, Dissolved	0.30		5.00	5.26		mg/L		99	75 - 125	2	20
Manganese	0.64		0.500	1.16		mg/L		103	75 - 125	3	20
Manganese, Dissolved	0.64		0.500	1.16		mg/L		103	75 - 125	3	20

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-468327/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 468327

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			02/08/17 15:57	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			02/08/17 15:57	1

Lab Sample ID: LCS 680-468327/8 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 468327

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	231		mg/L		92	80 - 120

Lab Sample ID: LCSD 680-468327/34 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 468327

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	250	244		mg/L		97	80 - 120	5	30

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Method: 325.2 - Chloride

Lab Sample ID: MB 680-468795/1
Matrix: Water
Analysis Batch: 468795

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			02/13/17 13:36	1

Lab Sample ID: LCS 680-468795/2
Matrix: Water
Analysis Batch: 468795

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 680-468795/5
Matrix: Water
Analysis Batch: 468795

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	26.0		mg/L		104	85 - 115	1	30

Lab Sample ID: 680-135094-1 MS
Matrix: Water
Analysis Batch: 468795

Client Sample ID: GM-31A-0217
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	32		25.0	56.7		mg/L		98	85 - 115

Lab Sample ID: 680-135094-1 MSD
Matrix: Water
Analysis Batch: 468795

Client Sample ID: GM-31A-0217
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	32		25.0	57.6		mg/L		101	85 - 115	1	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-468248/13
Matrix: Water
Analysis Batch: 468248

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			02/08/17 13:26	1

Lab Sample ID: LCS 680-468248/16
Matrix: Water
Analysis Batch: 468248

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.521		mg/L		104	75 - 125
Nitrate Nitrite as N	1.00	1.03		mg/L		103	90 - 110
Nitrite as N	0.500	0.509		mg/L		102	90 - 110

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Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: 680-135094-1 MS
Matrix: Water
Analysis Batch: 468248

Client Sample ID: GM-31A-0217
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.3	F1	0.500	1.50	F1	mg/L		41	75 - 125
Nitrate Nitrite as N	1.3	F1	1.00	2.05	F1	mg/L		74	90 - 110
Nitrite as N	0.050	U	0.500	0.546		mg/L		104	90 - 110

Lab Sample ID: 680-135094-1 MSD
Matrix: Water
Analysis Batch: 468248

Client Sample ID: GM-31A-0217
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	1.3	F1	0.500	1.51	F1	mg/L		42	75 - 125	0	30
Nitrate Nitrite as N	1.3	F1	1.00	2.05	F1	mg/L		73	90 - 110	0	10
Nitrite as N	0.050	U	0.500	0.542		mg/L		103	90 - 110	1	10

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-469008/4
Matrix: Water
Analysis Batch: 469008

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			02/14/17 13:40	1

Lab Sample ID: LCS 680-469008/5
Matrix: Water
Analysis Batch: 469008

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	19.8		mg/L		99	75 - 125

Lab Sample ID: LCSD 680-469008/8
Matrix: Water
Analysis Batch: 469008

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	20.0	20.2		mg/L		101	75 - 125	2	30

Lab Sample ID: 680-135094-1 MS
Matrix: Water
Analysis Batch: 469008

Client Sample ID: GM-31A-0217
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	100		20.0	123	4	mg/L		97	75 - 125

Lab Sample ID: 680-135094-1 MSD
Matrix: Water
Analysis Batch: 469008

Client Sample ID: GM-31A-0217
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	100		20.0	121	4	mg/L		87	75 - 125	2	30

Method: 415.1 - DOC

Lab Sample ID: MB 680-468704/2
Matrix: Water
Analysis Batch: 468704

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			02/11/17 02:20	1

Lab Sample ID: LCS 680-468704/3
Matrix: Water
Analysis Batch: 468704

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	21.4		mg/L		107	80 - 120

Lab Sample ID: LCSD 680-468704/4
Matrix: Water
Analysis Batch: 468704

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	20.0	21.6		mg/L		108	80 - 120	1	20

Method: 415.1 - TOC

Lab Sample ID: MB 680-468948/2
Matrix: Water
Analysis Batch: 468948

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			02/13/17 22:40	1

Lab Sample ID: LCS 680-468948/3
Matrix: Water
Analysis Batch: 468948

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	21.0		mg/L		105	80 - 120

Lab Sample ID: LCSD 680-468948/4
Matrix: Water
Analysis Batch: 468948

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	20.0	21.1		mg/L		106	80 - 120	0	25

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QC Association Summary

Client: Solutia Inc.
Project/Site: 1Q17 Drum Site GW Sampling - 1403345

TestAmerica Job ID: 680-135094-1
SDG: KOM036

GC/MS Semi VOA

Prep Batch: 468344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-135094-1	GM-31A-0217	Total/NA	Water	3520C	
680-135094-3	GM-31A-0217-AD	Total/NA	Water	3520C	
680-135094-4	GM-31A-0217-EB	Total/NA	Water	3520C	
680-135094-5	GM-58A-0217	Total/NA	Water	3520C	
MB 680-468344/9-A	Method Blank	Total/NA	Water	3520C	
LCS 680-468344/10-A	Lab Control Sample	Total/NA	Water	3520C	
LCS 680-468344/15-A	Lab Control Sample	Total/NA	Water	3520C	
680-135094-5 MS	GM-58A-0217-MS	Total/NA	Water	3520C	
680-135094-5 MS	GM-58A-0217-MS	Total/NA	Water	3520C	
680-135094-5 MSD	GM-58A-0217-MSD	Total/NA	Water	3520C	
680-135094-5 MSD	GM-58A-0217-MSD	Total/NA	Water	3520C	

Analysis Batch: 469419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-135094-1	GM-31A-0217	Total/NA	Water	8270D	468344
680-135094-3	GM-31A-0217-AD	Total/NA	Water	8270D	468344
680-135094-4	GM-31A-0217-EB	Total/NA	Water	8270D	468344
680-135094-5	GM-58A-0217	Total/NA	Water	8270D	468344
MB 680-468344/9-A	Method Blank	Total/NA	Water	8270D	468344
LCS 680-468344/10-A	Lab Control Sample	Total/NA	Water	8270D	468344
LCS 680-468344/15-A	Lab Control Sample	Total/NA	Water	8270D	468344
680-135094-5 MS	GM-58A-0217-MS	Total/NA	Water	8270D	468344
680-135094-5 MS	GM-58A-0217-MS	Total/NA	Water	8270D	468344
680-135094-5 MSD	GM-58A-0217-MSD	Total/NA	Water	8270D	468344
680-135094-5 MSD	GM-58A-0217-MSD	Total/NA	Water	8270D	468344

GC VOA

Analysis Batch: 469562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-135094-1	GM-31A-0217	Total/NA	Water	RSK-175	
680-135094-5	GM-58A-0217	Total/NA	Water	RSK-175	
MB 680-469562/11	Method Blank	Total/NA	Water	RSK-175	
LCS 680-469562/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-469562/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-469562/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-469562/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Metals

Prep Batch: 468750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-135094-1	GM-31A-0217	Total Recoverable	Water	3005A	
680-135094-2	GM-31A-F(0.2)-0217	Dissolved	Water	3005A	
680-135094-5	GM-58A-0217	Total Recoverable	Water	3005A	
680-135094-6	GM-58A-F(0.2)-0217	Dissolved	Water	3005A	
MB 680-468750/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 680-468750/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
680-135094-1 MS	GM-31A-0217	Total Recoverable	Water	3005A	
680-135094-1 MSD	GM-31A-0217	Total Recoverable	Water	3005A	

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Metals (Continued)

Analysis Batch: 469073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-135094-1	GM-31A-0217	Total Recoverable	Water	6010C	468750
680-135094-2	GM-31A-F(0.2)-0217	Dissolved	Water	6010C	468750
680-135094-5	GM-58A-0217	Total Recoverable	Water	6010C	468750
680-135094-6	GM-58A-F(0.2)-0217	Dissolved	Water	6010C	468750
MB 680-468750/1-A	Method Blank	Total Recoverable	Water	6010C	468750
LCS 680-468750/2-A	Lab Control Sample	Total Recoverable	Water	6010C	468750
680-135094-1 MS	GM-31A-0217	Total Recoverable	Water	6010C	468750
680-135094-1 MSD	GM-31A-0217	Total Recoverable	Water	6010C	468750

General Chemistry

Analysis Batch: 468248

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-135094-1	GM-31A-0217	Total/NA	Water	353.2	
680-135094-5	GM-58A-0217	Total/NA	Water	353.2	
MB 680-468248/13	Method Blank	Total/NA	Water	353.2	
LCS 680-468248/16	Lab Control Sample	Total/NA	Water	353.2	
680-135094-1 MS	GM-31A-0217	Total/NA	Water	353.2	
680-135094-1 MSD	GM-31A-0217	Total/NA	Water	353.2	

Analysis Batch: 468327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-135094-1	GM-31A-0217	Total/NA	Water	310.1	
680-135094-5	GM-58A-0217	Total/NA	Water	310.1	
MB 680-468327/7	Method Blank	Total/NA	Water	310.1	
LCS 680-468327/8	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-468327/34	Lab Control Sample Dup	Total/NA	Water	310.1	

Analysis Batch: 468704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-135094-2	GM-31A-F(0.2)-0217	Dissolved	Water	415.1	
680-135094-6	GM-58A-F(0.2)-0217	Dissolved	Water	415.1	
MB 680-468704/2	Method Blank	Dissolved	Water	415.1	
LCS 680-468704/3	Lab Control Sample	Dissolved	Water	415.1	
LCSD 680-468704/4	Lab Control Sample Dup	Dissolved	Water	415.1	

Analysis Batch: 468795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-135094-1	GM-31A-0217	Total/NA	Water	325.2	
680-135094-5	GM-58A-0217	Total/NA	Water	325.2	
MB 680-468795/1	Method Blank	Total/NA	Water	325.2	
LCS 680-468795/2	Lab Control Sample	Total/NA	Water	325.2	
LCSD 680-468795/5	Lab Control Sample Dup	Total/NA	Water	325.2	
680-135094-1 MS	GM-31A-0217	Total/NA	Water	325.2	
680-135094-1 MSD	GM-31A-0217	Total/NA	Water	325.2	

Analysis Batch: 468948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-135094-1	GM-31A-0217	Total/NA	Water	415.1	
680-135094-5	GM-58A-0217	Total/NA	Water	415.1	

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General Chemistry (Continued)

Analysis Batch: 468948 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-468948/2	Method Blank	Total/NA	Water	415.1	
LCS 680-468948/3	Lab Control Sample	Total/NA	Water	415.1	
LCSD 680-468948/4	Lab Control Sample Dup	Total/NA	Water	415.1	

Analysis Batch: 469008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-135094-1	GM-31A-0217	Total/NA	Water	375.4	
680-135094-5	GM-58A-0217	Total/NA	Water	375.4	
MB 680-469008/4	Method Blank	Total/NA	Water	375.4	
LCS 680-469008/5	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-469008/8	Lab Control Sample Dup	Total/NA	Water	375.4	
680-135094-1 MS	GM-31A-0217	Total/NA	Water	375.4	
680-135094-1 MSD	GM-31A-0217	Total/NA	Water	375.4	

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Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q17 Drum Site GW Sampling - 1403345

TestAmerica Job ID: 680-135094-1
SDG: KOM036

Client Sample ID: GM-31A-0217

Lab Sample ID: 680-135094-1

Date Collected: 02/07/17 13:15
Matrix: Water
Date Received: 02/08/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			1009.8 mL	1 mL	468344	02/09/17 15:47	RBS	TAL SAV
Total/NA	Analysis	8270D		1	1 mL	1.0 mL	469419	02/17/17 19:09	DBM	TAL SAV
Total/NA	Analysis	RSK-175		1	17 mL	17 mL	469562	02/20/17 16:08	JJW	TAL SAV
Total Recoverable	Prep	3005A			50 mL	50 mL	468750	02/13/17 10:48	AJR	TAL SAV
Total Recoverable	Analysis	6010C		1			469073	02/14/17 23:45	BCB	TAL SAV
Total/NA	Analysis	310.1		1			468327	02/08/17 16:13	JCM	TAL SAV
Total/NA	Analysis	325.2		2	2 mL	2 mL	468795	02/13/17 13:51	ALS	TAL SAV
Total/NA	Analysis	353.2		1	2 mL	2 mL	468248	02/08/17 13:32	GRX	TAL SAV
Total/NA	Analysis	375.4		5	2 mL	2 mL	469008	02/14/17 14:02	ALS	TAL SAV
Total/NA	Analysis	415.1		1	40 mL	40 mL	468948	02/14/17 00:20	KLD	TAL SAV

Client Sample ID: GM-31A-F(0.2)-0217

Lab Sample ID: 680-135094-2

Date Collected: 02/07/17 13:15
Matrix: Water
Date Received: 02/08/17 09:00

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	468750	02/13/17 10:48	AJR	TAL SAV
Dissolved	Analysis	6010C		1			469073	02/15/17 00:13	BCB	TAL SAV
Dissolved	Analysis	415.1		1			468704	02/11/17 09:56	KLD	TAL SAV

Client Sample ID: GM-31A-0217-AD

Lab Sample ID: 680-135094-3

Date Collected: 02/07/17 13:15
Matrix: Water
Date Received: 02/08/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			1009.7 mL	1 mL	468344	02/09/17 15:47	RBS	TAL SAV
Total/NA	Analysis	8270D		1	1 mL	1.0 mL	469419	02/17/17 19:30	DBM	TAL SAV

Client Sample ID: GM-31A-0217-EB

Lab Sample ID: 680-135094-4

Date Collected: 02/07/17 14:05
Matrix: Water
Date Received: 02/08/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			1017.9 mL	1 mL	468344	02/09/17 15:47	RBS	TAL SAV
Total/NA	Analysis	8270D		1	1 mL	1.0 mL	469419	02/17/17 19:51	DBM	TAL SAV

Client Sample ID: GM-58A-0217

Lab Sample ID: 680-135094-5

Date Collected: 02/07/17 10:58
Matrix: Water
Date Received: 02/08/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			998.5 mL	1 mL	468344	02/09/17 15:47	RBS	TAL SAV

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q17 Drum Site GW Sampling - 1403345

TestAmerica Job ID: 680-135094-1
SDG: KOM036

Client Sample ID: GM-58A-0217

Lab Sample ID: 680-135094-5

Date Collected: 02/07/17 10:58
Matrix: Water
Date Received: 02/08/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270D		1	1 mL	1.0 mL	469419	02/17/17 20:12	DBM	TAL SAV
Total/NA	Analysis	RSK-175		1	17 mL	17 mL	469562	02/20/17 16:21	JJW	TAL SAV
Total Recoverable	Prep	3005A			50 mL	50 mL	468750	02/13/17 10:48	AJR	TAL SAV
Total Recoverable	Analysis	6010C		1			469073	02/15/17 00:29	BCB	TAL SAV
Total/NA	Analysis	310.1		1			468327	02/08/17 16:23	JCM	TAL SAV
Total/NA	Analysis	325.2		2	2 mL	2 mL	468795	02/13/17 13:51	ALS	TAL SAV
Total/NA	Analysis	353.2		1	2 mL	2 mL	468248	02/08/17 13:36	GRX	TAL SAV
Total/NA	Analysis	375.4		5	2 mL	2 mL	469008	02/14/17 14:04	ALS	TAL SAV
Total/NA	Analysis	415.1		1	40 mL	40 mL	468948	02/14/17 00:38	KLD	TAL SAV

Client Sample ID: GM-58A-F(0.2)-0217

Lab Sample ID: 680-135094-6

Date Collected: 02/07/17 10:58
Matrix: Water
Date Received: 02/08/17 09:00

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	468750	02/13/17 10:48	AJR	TAL SAV
Dissolved	Analysis	6010C		1			469073	02/15/17 00:35	BCB	TAL SAV
Dissolved	Analysis	415.1		1			468704	02/11/17 10:47	KLD	TAL SAV

Laboratory References:

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

MWD 4/11/17
TestAmerica Savannah

Accreditation/Certification Summary

Client: Solutia Inc.
Project/Site: 1Q17 Drum Site GW Sampling - 1403345

TestAmerica Job ID: 680-135094-1
SDG: KOM036

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	11-30-17

AWD 4/11/17

TestAmerica Savannah

Method Summary

Client: Solutia Inc.
Project/Site: 1Q17 Drum Site GW Sampling - 1403345

TestAmerica Job ID: 680-135094-1
SDG: KOM036

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
310.1	Alkalinity	MCAWW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SAV
415.1	DOC	MCAWW	TAL SAV

Protocol References:

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

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

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

Laboratory References:

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

AMD 4/11/17
TestAmerica Savannah

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Samantha DiCenso	Date: 2/7/17	COC No: 1 of 1 COCs
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	Sampler:
820 South Main Street	Analysis Turnaround Time			For Lab Use Only:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			Walk-in Client:
(636) 724-9191 Phone	TAT if different from Below ______			Lab Sampling:
(636) 724-9323 FAX	☑ 2 weeks			
Project Name: 1Q17 Drum Site GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42262863	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	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:
GM-31A-0217	2/7/17	1315	G	W	12	N		2	1	1	1	3	1	3			
GM-31A-F(0.2)-0217	|	1315	|	|	4	Y									1	3	2 coolers
GM-31A-0217-AD	|	1315	|	|	2	N		2									
GM-31A-0217-EB	|	1405	|	|	2	N		2									
GM-58A-0217	|	1058	|	|	12	N		2	1	1	1	3	1	3			
GM-58A-F(0.2)-0217	|	1058	|	|	4	Y									1	3	
GM-58A-0217-MS	|	1058	|	|	2	N		2									
GM-58A-0217-MSD	|	1058	|	|	2	N		2									
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______								1	4	1	1	2	3,1	3	4	3	

680-135094 Chain of Custody

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

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

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

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

Special Instructions/QC Requirements & Comments:

3.5/3.5 2.6/2.6

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: ______ Corr'd: ______	Therm ID No.: ______	
Relinquished by: Samantha [signature]	Company: Golder	Date/Time: 2/7/17 1800	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: V. Jackson	Company: TA	Date/Time: 2-8-17 900

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

AWD 4/11/17

4/10/2017

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-135094-1
SDG Number: KOM036

Login Number: 135094
List Number: 1
Creator: Jackson, Victor L

List Source: TestAmerica Savannah

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

AWD 4/11/17
4/10/2017

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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South America	+ 55 21 3095 9500

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