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

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

gmrina@eastman.com

January 15, 2016

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
4th Quarter 2015 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Ms. Bury:

Enclosed please find the Route 3 Drum Site Groundwater Monitoring Program 4th Quarter 2015 Data Report for Solutia Inc.'s W. G. Krummrich Plant, Sauget, IL.

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

Sincerely,

Gerald M. Rinaldi
Manager, Remediation Services

Enclosure

cc: Distribution List

DISTRIBUTION LIST

Route 3 Drum Site Groundwater Monitoring Program
4th Quarter 2015 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

USEPA

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

Solutia

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

GROUNDWATER MONITORING REPORT

ILLINOIS ROUTE 3 DRUM SITE
GROUNDWATER MONITORING
SOLUTIA INC., W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

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

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

January 2016 **140-3345**

A world of capabilities delivered locally

Golder Associates

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) is pleased to submit this report summarizing the 4th Quarter 2015 (4Q15) 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) facility in Sauget, Illinois located at 500 Monsanto Avenue, Sauget, Illinois. The 4Q15 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-dichloronitrobenzene, 3-nitrobiphenyl, 3-nitrochlorobenzene, 4-nitrobiphenyl, nitrobenzene, and pentachlorophenol. In addition, the following monitored natural attenuation (MNA) parameters are sampled quarterly to evaluate active natural attenuation occurring at the Site:

- Electron Donors – total and dissolved organic carbon
- Electron Acceptors – iron, manganese, nitrate, sulfate
- Biodegradation Byproducts – carbon dioxide, chloride, methane
- Biodegradation Indicators – alkalinity

2.0 FIELD ACTIVITIES

Golder conducted 4Q15 sampling activities on November 10, 2015. Activities were performed in general accordance with the Work Plan.

2.1 Water Level Measurement

Prior to sampling during the 4Q15 event, Golder performed a synoptic round of water level and total depth measurements at 77 monitoring wells and piezometers on October 29 and October 30, 2015. 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 4Q15 sampling event, NAPL was not detected in monitoring wells or piezometers. Total depths are measured during the 1st quarter of each year. The 4Q15 well gauging information is shown on Table 1.

2.2 Groundwater Sample Collection

Monitoring wells sampled during the 4Q15 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 SmartTROLL™ 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 4Q15 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.: November (4th quarter), 2015 (1115)
- **“QA/QC”** denotes QA/QC sample
  - **AD** – Analytical Duplicate
  - **EB** – Equipment Blank
  - **MS or MSD** – Matrix Spike or Matrix Spike Duplicate

Samples that were field filtered with an in-line 0.2 micron filter include “F(0.2)” prior to the “MMYY” portion of the sample identification. Sample information was recorded on a chain-of-custody (COC) that included project identification, sample identification, date and time of sample collection, analysis requested, preservative used, sample matrix and type, number of sample containers, sampler signature, and date COC was completed. 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. Sample results are included in Appendix D. Results were submitted in one (1) sample delivery group (SDG) as follows:

Sample Delivery Group (SDG)	Sample Identification
KOM030	GM-58A-1115
	GM-31A-1115
	GM-31A-1115-AD
	GM-31A-1115-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. The completeness for the data set was 100%.

4.0 OBSERVATIONS

SVOCs were not detected in groundwater samples collected from monitoring well GM-58A during the 4Q15 sampling event. The SVOC 2-nitrobiphenyl was detected in GM-31A and GM-31A-AD at concentrations of 15 µg/L and 13 µg/L, respectively. The SVOC 2,4,6-trichlorophenol was detected in GM-31A and GM-31A-AD at concentrations of 38 µg/L and 41 µg/L respectively. Groundwater analytical data for SVOCs and MNA parameters is presented in Table 2 and 3, respectively.

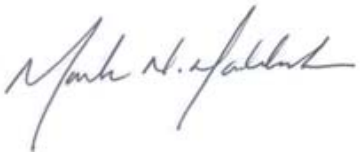
5.0 CLOSING

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 Project Engineer



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

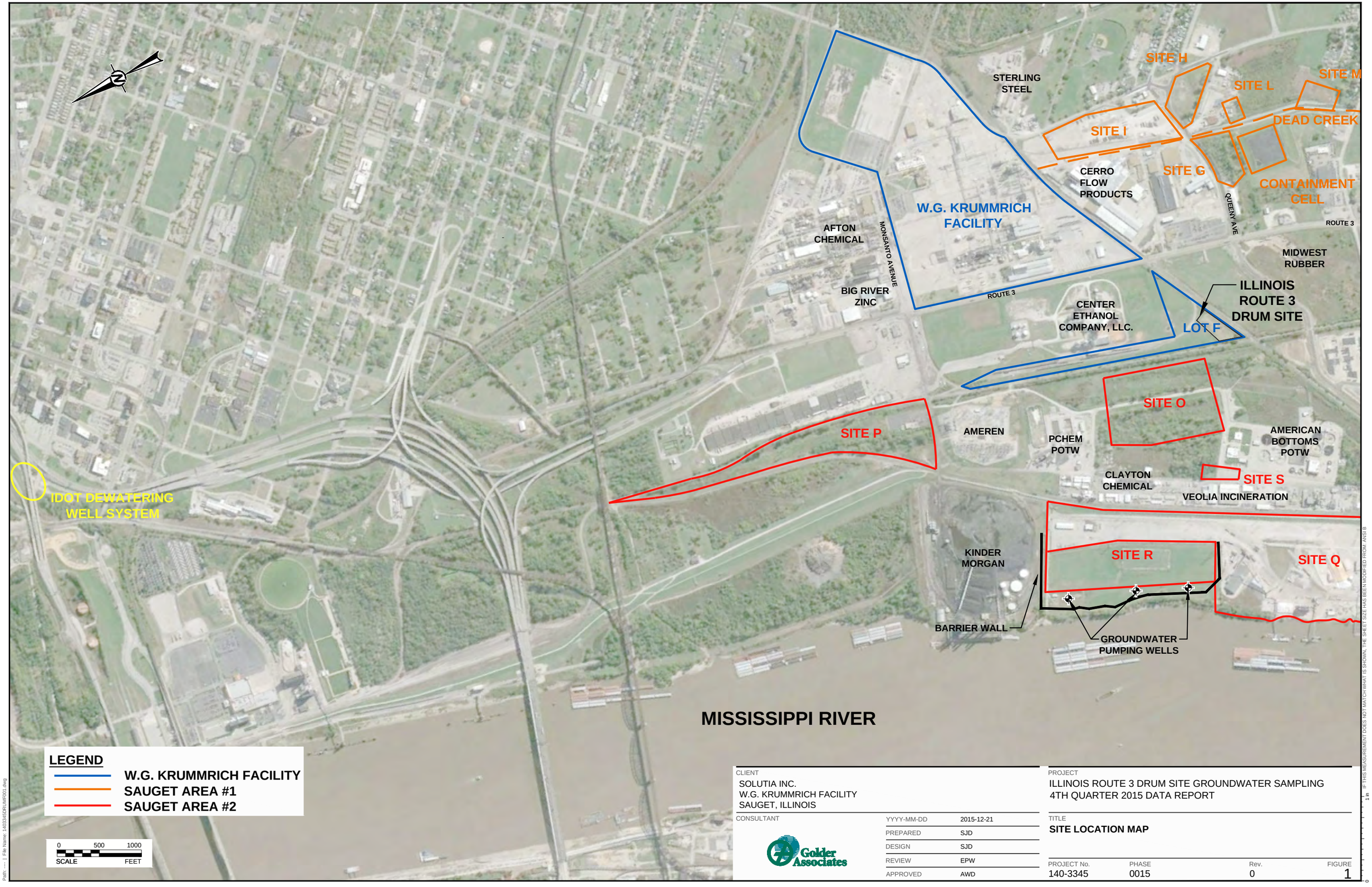
6.0 REFERENCES

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 FACILITY
SAUGET, ILLINOIS

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-12-21
PREPARED	SJD
DESIGN	SJD
REVIEW	EPW
APPROVED	AWD

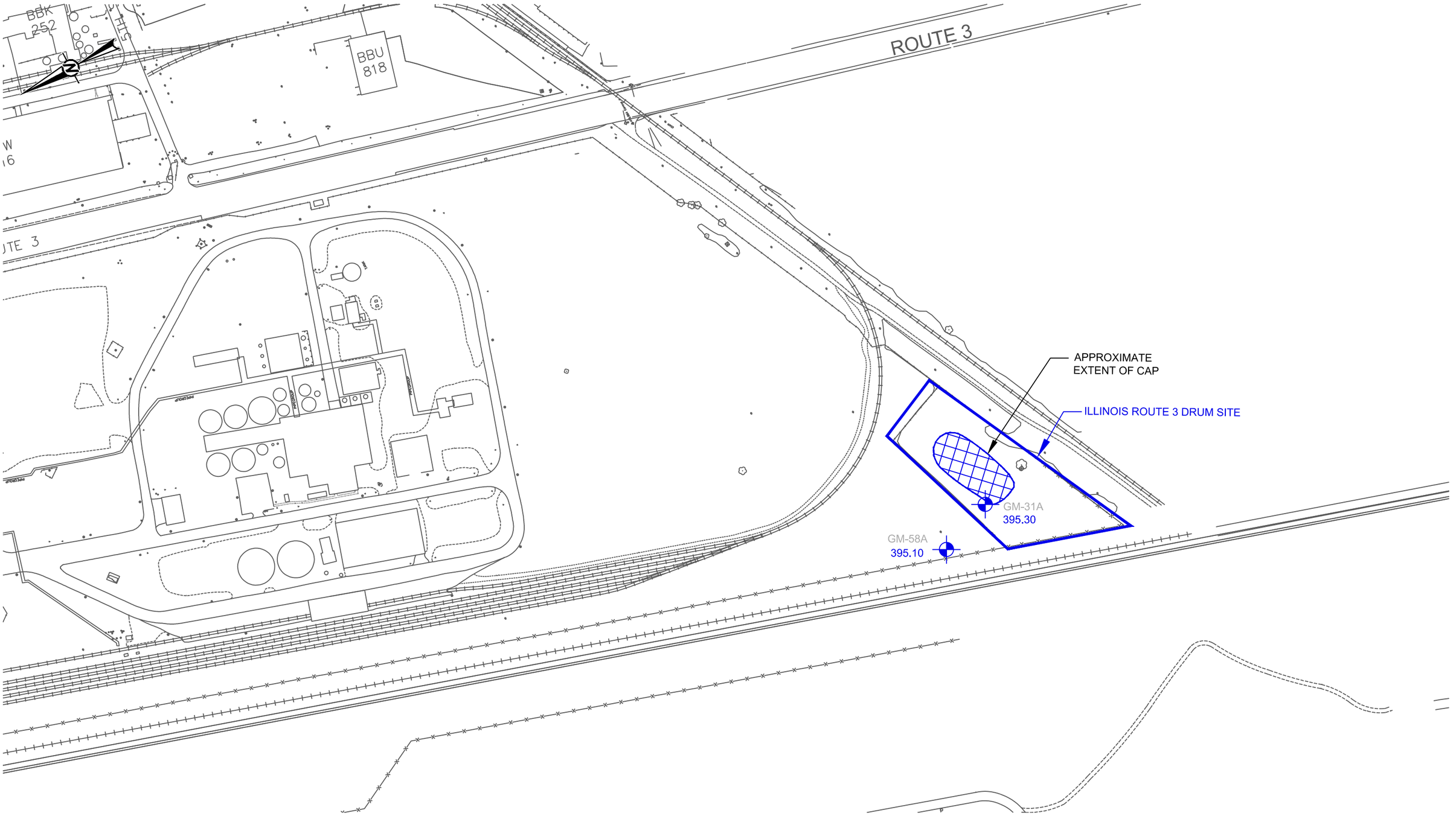
PROJECT
ILLINOIS ROUTE 3 DRUM SITE GROUNDWATER SAMPLING
4TH QUARTER 2015 DATA REPORT

TITLE
SITE LOCATION MAP

PROJECT No.	PHASE	Rev.	FIGURE
140-3345	0015	0	1

Path: ---- | File Name: 1403345DRUMF001.dwg

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



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 FACILITY
SAUGET, ILLINOIS

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-12-21
PREPARED	SJD
DESIGN	SJD
REVIEW	EPW
APPROVED	AWD

PROJECT
ILLINOIS ROUTE 3 DRUM SITE GROUNDWATER SAMPLING
4TH QUARTER 2015 DATA REPORT

TITLE
MONITORING WELL LOCATIONS AND GROUNDWATER ELEVATION MAP

PROJECT No.	PHASE	Rev.	FIGURE
140-3345	0015	0	2

Path: ---- | File Name: 1403345_ROUTE3 DRUM SITE_SJD.dwg

TABLES

Table 1
Monitoring Well Gauging Information
4Q15 Route 3 Drum Site Monitoring Program
Solutia Inc., W.G. Krummrich Facility
Sauget, Illinois

Well Identification	Monitoring Well Construction Data						4Q15 - October 29 and 30, 2015			
	Ground Surface Elevation[1] (ft)	Top of Casing Elevation[1] (ft)	Top of Screen Depth (ft bgs)	Bottom of Screen Depth (ft bgs)	Top of Screen Elevation[1] (ft)	Bottom of Screen Elevation[1] (ft)	Water Level (ft btoc)	Depth to NAPL (ft btoc)	Total Depth[2] (ft btoc)	Water Level Elevation[1] (ft)
SHU 395-380 ft NAVD 88										
GM-31A	416.63	418.63	19.00	39.00	397.63	377.63	23.33	NP	40.15	395.30
GM-58A	412.24	414.24	19.40	39.40	392.84	372.84	19.14	NP	40.82	395.10

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

Prepared By: SJD 12/2/2015
Checked By: EPW 12/21/2015
Reviewed By: AWD 1/8/2016

Table 2
Groundwater Analytical Results
4Q15 Route 3 Drum Site Monitoring Program
Solutia Inc., W.G. Krummrich Facility
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-1115	11/10/2015	<10	<10	**38**	<10	<20	**15**	<10	<10	<10	<10	<10	<50
GM-31A-1115-AD	11/10/2015	<10	<10	**41**	<10	<20	**13**	<10	<10	<10	<10	<10	<50
GM-58A-1115	11/10/2015	<9.8	<9.8	<9.8	<9.8	<20	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<49

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

Prepared By: EPW 12/21/2015
Checked By: BEF 1/7/2016
Reviewed By: AWD 1/8/2016

Table 3
Monitored Natural Attenuation Results
4Q15 Route 3 Drum Site Monitoring Program
Solutia Inc., W.G. Krummrich Facility
Sauget, Illinois

Sample Identification	Sample Date	Monitored Natural Attenuation Parameters																
		Alkalinity (mg/L)	Carbon Dioxide (mg/L)	Chloride (mg/L)	Dissolved Oxygen (mg/L)	Ethane (ug/L)	Ethylene (ug/L)	Ferrous Iron (mg/L)	Iron (mg/L)	Iron, Dissolved (mg/L)	Manganese (mg/L)	Manganese, Dissolved (mg/L)	Methane (ug/L)	Nitrogen, Nitrate (mg/L)	Sulfate as SO4 (mg/L)	Total Organic Carbon (mg/L)	Dissolved Organic Carbon (mg/L)	ORP (mV)
SHU																		
GM-31A-1115	11/10/2015	390	16	44	0.11	<1.1	<1.0	-	1.7	-	0.85	-	36	0.98	140 D	5.2	-	88.39
GM-31A-F(0.2)-1115	11/10/2015	-	-	-	-	-	-	0.0	-	0.16	-	0.82	-	-	-	-	6.1	-
GM-58A-1115	11/10/2015	430	16	59 D	0.16	<1.1	<1.0	-	7.4	-	0.85	-	1.5	2.0	150 D	4.7	-	71.35
GM-58A-F(0.2)-1115	11/10/2015	-	-	-	-	-	-	0.0	-	0.53	-	0.84	-	-	-	-	4.6	-

Notes

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

Prepared By: EPW 12/21/2015
Checked By: BEF 1/7/2016
Reviewed By: AWD 1/8/2016

APPENDIX A
GROUNDWATER PURGING AND SAMPLING FORMS

In-Situ Inc.

SmartTroll
11/10/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	Rt. 3 Drum	Tubing Length	44.32 ft
		Pump Placement from TOC	30.15 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	40.15 ft	Calculated Sample Rate	67 sec
Depth to Top of Screen	20.15 ft	Sample Rate	67 sec
Screen Length	20 ft	Stabilized Drawdown	0.00 ft
Depth to Water	23.33 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	13:54:55	17.14	7.12	1026.69	75.50	0.10	82.49
	13:56:03	17.16	7.11	1025.79	72.20	0.11	84.48
	13:57:10	17.12	7.10	1025.31	55.30	0.11	85.99
	13:58:22	17.10	7.09	1026.70	56.20	0.11	87.32
	13:59:29	17.08	7.09	1026.70	52.70	0.11	88.39
Variance in Last 3 Readings		-0.04	-0.01	-0.48	-16.90	0.00	1.51
		-0.02	-0.01	1.39	0.90	0.00	1.33
		-0.02	0.00	0.00	-3.50	0.00	1.07

Notes:

In-Situ Inc.

SmartTroll
11/10/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	Peristaltic
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	Rt. 3 Drum	Tubing Length	50.58 ft
		Pump Placement from TOC	30.82 ft

Well Information:		**Pumping Information:**	
Well Id	GM-58A	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	472 mL
Well Total Depth	40.82 ft	Calculated Sample Rate	74 sec
Depth to Top of Screen	20.82 ft	Sample Rate	74 sec
Screen Length	20 ft	Stabilized Drawdown	0.00 ft
Depth to Water	19.14 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	16:09:32	15.06	7.18	1138.10	50.20	0.20	71.29
	16:10:46	15.10	7.17	1135.88	52.80	0.18	71.01
	16:12:00	15.07	7.16	1136.71	45.10	0.18	70.87
	16:13:14	15.08	7.15	1137.13	46.60	0.17	70.92
	16:14:28	15.10	7.14	1139.54	46.20	0.16	71.35
Variance in Last 3 Readings		-0.03	-0.01	0.83	-7.70	0.00	-0.14
		0.01	-0.01	0.42	1.50	-0.01	0.05
		0.02	-0.01	2.41	-0.40	-0.01	0.43

Notes:

APPENDIX B
CHAIN-OF-CUSTODY

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bledsoe	Date: 11/10/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 3Q15 Drum Site GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Facility	☐ 2 days			
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	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-1115	11/10/15	1400	G	W	12	N		2	1	1	1	3	1	3			2 coolers
GM-31A-F(0.2)-1115	"	1400	"	"	4	N									1	3	
GM-31A-1115-AD	"	1400	"	"	2	N		2									
GM-31A-1115-EB	"	1435	"	"	2	N		2									
GM-58A-1115	"	1615	"	"	12	N		2	1	1	1	3	1	3			
GM-58A-F(0.2)-1115	"	1615	"	"	4	N									1	3	
GM-58A-1115-MS	"	1615	"	"	2	N		2									
GM-58A-1115-MSD	"	1615	"	"	2	N		2									
								1	4	1	1	2	3.1	3	4	3	

680-118880 Chain of Custody

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

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

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

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

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

Special Instructions/QC Requirements & Comments:

680-118880

2.8/3.0(CF) 3.2/3.4°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 709335 / 709864	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____		
Relinquished by: Emily White	Company: Golder	Date/Time: 11/10/15 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA SAV.	Date/Time: 11-11-15 1155

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

APPENDIX C
QUALITY ASSURANCE REPORT

QUALITY ASSURANCE REPORT

ILLINOIS ROUTE 3 DRUM SITE
GROUNDWATER MONITORING
SOLUTIA INC., W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

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

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

January 2016 **140-3345**

A world of capabilities delivered locally

Golder Associates

Table of Contents

1.0 INTRODUCTION

Golder Associates Inc. (Golder) completed a review of analytical data for the groundwater samples collected on November 10, 2015 at the Illinois Route 3 Drum Site (Site) associated with the Solutia Inc. (Solutia) W.G. Krummrich (WGK) facility in Sauget, Illinois. Golder collected a total of six (6) samples from groundwater monitoring wells as part of the 4th Quarter 2015 (4Q15) 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
KOM030	GM-31A-1115
	GM-31A-1115-AD
	GM-31A-1115-EB
	GM-58A-1115

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
- F1 – MS/MSD Recovery exceeds the control limits

Golder data qualifiers are defined below:

- D – The analyte was analyzed at a dilution

Sections 2 and 3 summarize the specific instances where quality control criteria in the functional guidelines were not met. As specified in the functional guidelines, if the non-adherence to quality control criteria is slight, professional judgment was used in qualification of the data. However, if the non-adherence is significant, qualification and rejection of the data may be necessary. A summary of qualified data is provided in Section 4.0.

2.0 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 (KOM030), 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 checklist, 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 4Q15 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-flourobiphenyl, 2-fluorophenol, nitrobenzene-d5, phenol-d5, terphenyl-d14, and 2,4,6-trichlorophenol, prior to analysis, to evaluate overall laboratory performance. Surrogate recoveries were within acceptance criteria.

2.4 Laboratory Control Sample Recoveries

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

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

MS/MSD samples are analyzed to determine long term precision and accuracy of the analytical method on various matrices. One (1) MS/MSD pair is sampled for every twenty (20) field samples. One (1) MS/MSD pair was collected during the 4Q15 event associated with sample GM-58A. Some MS/MSD data for these samples was outside acceptance criteria. Since MS/MSD data alone cannot be used to evaluate the precision and accuracy of data, data qualification was not required for associated samples.

2.6 Analytical Duplicates

One (1) AD is collected for every ten (10) field samples to determine the overall precision of field and laboratory methods. One (1) AD was collected during the 4Q15 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 (KOM030), 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 checklist, 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. Results were within accuracy and precision criteria.

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 4Q15 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
4Q15 Route 3 Drum Site Monitoring Program

Company Name: Golder Associates
Project Name: WGK-4Q15 DRUM
Reviewer: A. Derhake
Laboratory: TestAmerica
SDG#: KOM030
Matrix: Water

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

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-1115, GM-31A-F(0.2)-1115, GM-31A-1115-AD, GM-31A-1115-EB, GM-58A-1115, and GM-58A-F(0.2)-1115

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

Comments:

SVOC: 1-Chloro-3-nitrobenzene exceeded the recovery criteria low for the MSD of sample GM-58A-1115MSD in batch 412216.

Dissolved Gases: No deficiencies noted.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Sample GM-58A-1115 required dilution prior to analysis, reporting limits have been adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Samples GM-31A-1115 and GM-58A-1115 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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

Comments: Samples were received at 3.2°C and 3.4°C, within the 4°C +/- 2°C criteria.

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

Comments: Samples GM-31A-1115 and GM-58A-1115 required dilution prior to sulfate and chloride analyses.

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 DFTPP meet the ion abundance criteria?	☒	☐	☐
c) Internal Standard retention times and areas met appropriate criteria?	☒	☐	☐

Comments: None

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

Comments: None

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

Comments: Equipment blank GM-31A-115-EB was submitted with SDG KOM030.

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: 1-Chloro-3-nitrobenzene recovery low for MSD in batch 412216. Data was not qualified based on MS/MSD data alone.

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

Comments: None

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

Comments: None

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

Comments: Duplicate sample GM-31A-1115-AD was submitted with SDG KOM030.

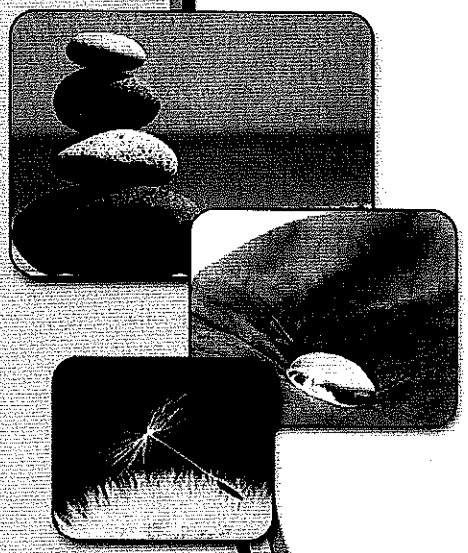
Additional Comments: None

Qualifications:

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

SDG KOM030
Sample Results from:

GM-31A
GM-58A



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: 680-118880-1
TestAmerica Sample Delivery Group: KOM030
Client Project/Site: 4Q15 Drum Site GW Sampling - 1403345

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

Attn: Mr. Jerry Rinaldi

Michele R Kersey

Authorized for release by:
12/3/2015 4:15:50 PM

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

AWD 12/30/15

Definitions/Glossary

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
F1	MS and/or MSD Recovery is outside acceptance limits.

GC VOA

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

Metals

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

General Chemistry

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, 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)

12/30/15
TestAmerica Savannah

Sample Summary

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-118880-1	GM-31A-1115	Water	11/10/15 14:00	11/11/15 11:55
680-118880-2	GM-31A-F(0.2)-1115	Water	11/10/15 14:00	11/11/15 11:55
680-118880-3	GM-31A-1115-AD	Water	11/10/15 14:00	11/11/15 11:55
680-118880-4	GM-31A-1115-EB	Water	11/10/15 14:35	11/11/15 11:55
680-118880-5	GM-58A-1115	Water	11/10/15 16:15	11/11/15 11:55
680-118880-6	GM-58A-F(0.2)-1115	Water	11/10/15 16:15	11/11/15 11:55

12/30/15
TestAmerica Savannah

Job ID: 680-118880-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 4Q15 Drum Site GW Sampling - 1403345

Report Number: 680-118880-1

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

RECEIPT
The samples were received on 11/11/2015 11:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.2° C and 3.4° C.

SEMIVOLATILE ORGANIC COMPOUNDS (AQUEOUS)
Samples GM-31A-1115 (680-118880-1), GM-31A-1115-AD (680-118880-3), GM-31A-1115-EB (680-118880-4) and GM-58A-1115 (680-118880-5) were analyzed for Semivolatile Organic Compounds (Aqueous) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 11/16/2015 and analyzed on 11/27/2015 and 11/28/2015.

1-Chloro-3-nitrobenzene exceeded the recovery criteria low for the MSD of sample GM-58A-1115MSD (680-118880-5) in batch 680-412216.

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

DISSOLVED GASES
Samples GM-31A-1115 (680-118880-1) and GM-58A-1115 (680-118880-5) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 11/13/2015.

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

METALS (ICP)
Samples GM-31A-F(0.2)-1115 (680-118880-2) and GM-58A-F(0.2)-1115 (680-118880-6) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared and analyzed on 11/16/2015.

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

METALS (ICP)
Samples GM-31A-1115 (680-118880-1) and GM-58A-1115 (680-118880-5) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared and analyzed on 11/16/2015.

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

ALKALINITY
Samples GM-31A-1115 (680-118880-1) and GM-58A-1115 (680-118880-5) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 11/19/2015.

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

12/2/2015
TestAmerica Savannah

Job ID: 680-118880-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

CHLORIDE
Samples GM-31A-1115 (680-118880-1) and GM-58A-1115 (680-118880-5) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 11/16/2015.

Sample GM-58A-1115 (680-118880-5)[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-1115 (680-118880-1) and GM-58A-1115 (680-118880-5) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 11/11/2015.

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

SULFATE
Samples GM-31A-1115 (680-118880-1) and GM-58A-1115 (680-118880-5) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 11/16/2015.

Samples GM-31A-1115 (680-118880-1)[5X] and GM-58A-1115 (680-118880-5)[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-1115 (680-118880-1) and GM-58A-1115 (680-118880-5) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 11/17/2015.

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

DISSOLVED ORGANIC CARBON (DOC)
Samples GM-31A-F(0.2)-1115 (680-118880-2) and GM-58A-F(0.2)-1115 (680-118880-6) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 11/18/2015.

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

MWD 12/28/15

Client Sample Results

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

Client Sample ID: GM-31A-1115
Date Collected: 11/10/15 14:00
Date Received: 11/11/15 11:55

Lab Sample ID: 680-118880-1
Matrix: Water

5

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		11/16/15 16:26	11/27/15 23:03	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:03	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:03	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		11/16/15 16:26	11/27/15 23:03	1
3,4-Dichloronitrobenzene	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:03	1
2,4-Dichlorophenol	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:03	1
Nitrobenzene	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:03	1
2-Nitrobiphenyl	15		10		ug/L		11/16/15 16:26	11/27/15 23:03	1
3-Nitrobiphenyl	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:03	1
4-Nitrobiphenyl	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:03	1
Pentachlorophenol	50	U	50		ug/L		11/16/15 16:26	11/27/15 23:03	1
2,4,6-Trichlorophenol	38		10		ug/L		11/16/15 16:26	11/27/15 23:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*68*		*32 - 113*	*11/16/15 16:26*	*11/27/15 23:03*	*1*
2-Fluorophenol	*52*		*26 - 109*	*11/16/15 16:26*	*11/27/15 23:03*	*1*
Nitrobenzene-d5	*75*		*32 - 118*	*11/16/15 16:26*	*11/27/15 23:03*	*1*
Phenol-d5	*58*		*27 - 110*	*11/16/15 16:26*	*11/27/15 23:03*	*1*
Terphenyl-d14	*30*		*10 - 126*	*11/16/15 16:26*	*11/27/15 23:03*	*1*
2,4,6-Tribromophenol	*67*		*39 - 124*	*11/16/15 16:26*	*11/27/15 23:03*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			11/13/15 15:24	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 15:24	1
Methane	36		0.58		ug/L			11/13/15 15:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.7		0.050		mg/L		11/16/15 09:45	11/16/15 21:33	1
Manganese	0.85		0.010		mg/L		11/16/15 09:45	11/16/15 21:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	44		1.0		mg/L			11/16/15 12:03	1
Nitrate as N	0.98		0.050		mg/L			11/11/15 17:03	1
Sulfate	140	D	25		mg/L			11/16/15 14:59	5
Total Organic Carbon	5.2		1.0		mg/L			11/17/15 23:41	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	390		5.0		mg/L			11/19/15 18:38	1
Carbon Dioxide, Free	18		5.0		mg/L			11/19/15 18:38	1

12/3/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

Client Sample ID: GM-31A-F(0.2)-1115
Date Collected: 11/10/15 14:00
Date Received: 11/11/15 11:55

Lab Sample ID: 680-118880-2
Matrix: Water

5

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.16		0.050		mg/L		11/16/15 09:45	11/16/15 21:45	1
Manganese, Dissolved	0.82		0.010		mg/L		11/16/15 09:45	11/16/15 21:45	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.1		1.0		mg/L			11/18/15 07:47	1

AWD
12/3/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

Client Sample ID: GM-31A-1115-AD
Date Collected: 11/10/15 14:00
Date Received: 11/11/15 11:55

Lab Sample ID: 680-118880-3
Matrix: Water

5

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		11/16/15 16:26	11/27/15 23:27	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:27	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:27	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		11/16/15 16:26	11/27/15 23:27	1
3,4-Dichloronitrobenzene	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:27	1
2,4-Dichlorophenol	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:27	1
Nitrobenzene	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:27	1
2-Nitrobiphenyl	13		10		ug/L		11/16/15 16:26	11/27/15 23:27	1
3-Nitrobiphenyl	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:27	1
4-Nitrobiphenyl	10	U	10		ug/L		11/16/15 16:26	11/27/15 23:27	1
Pentachlorophenol	50	U	50		ug/L		11/16/15 16:26	11/27/15 23:27	1
2,4,6-Trichlorophenol	41		10		ug/L		11/16/15 16:26	11/27/15 23:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*66*		*32 - 113*	*11/16/15 16:26*	*11/27/15 23:27*	*1*
2-Fluorophenol	*58*		*26 - 109*	*11/16/15 16:26*	*11/27/15 23:27*	*1*
Nitrobenzene-d5	*79*		*32 - 118*	*11/16/15 16:26*	*11/27/15 23:27*	*1*
Phenol-d5	*63*		*27 - 110*	*11/16/15 16:26*	*11/27/15 23:27*	*1*
Terphenyl-d14	*31*		*10 - 126*	*11/16/15 16:26*	*11/27/15 23:27*	*1*
2,4,6-Tribromophenol	*65*		*39 - 124*	*11/16/15 16:26*	*11/27/15 23:27*	*1*

MWD 12/30/15

TestAmerica Savannah

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

Client Sample ID: GM-31A-1115-EB
Date Collected: 11/10/15 14:35
Date Received: 11/11/15 11:55

Lab Sample ID: 680-118880-4
Matrix: Water

5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	9.7	U	9.7		ug/L		11/16/15 16:26	11/27/15 23:51	1
1-chloro-2,4-dinitrobenzene	9.7	U	9.7		ug/L		11/16/15 16:26	11/27/15 23:51	1
1-Chloro-3-nitrobenzene	9.7	U	9.7		ug/L		11/16/15 16:26	11/27/15 23:51	1
2-chloronitrobenzene / 4-chloronitrobenzene	19	U	19		ug/L		11/16/15 16:26	11/27/15 23:51	1
3,4-Dichloronitrobenzene	9.7	U	9.7		ug/L		11/16/15 16:26	11/27/15 23:51	1
2,4-Dichlorophenol	9.7	U	9.7		ug/L		11/16/15 16:26	11/27/15 23:51	1
Nitrobenzene	9.7	U	9.7		ug/L		11/16/15 16:26	11/27/15 23:51	1
2-Nitrobiphenyl	9.7	U	9.7		ug/L		11/16/15 16:26	11/27/15 23:51	1
3-Nitrobiphenyl	9.7	U	9.7		ug/L		11/16/15 16:26	11/27/15 23:51	1
4-Nitrobiphenyl	9.7	U	9.7		ug/L		11/16/15 16:26	11/27/15 23:51	1
Pentachlorophenol	48	U	48		ug/L		11/16/15 16:26	11/27/15 23:51	1
2,4,6-Trichlorophenol	9.7	U	9.7		ug/L		11/16/15 16:26	11/27/15 23:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*59*		*32 - 113*	*11/16/15 16:26*	*11/27/15 23:51*	*1*
2-Fluorophenol	*47*		*26 - 109*	*11/16/15 16:26*	*11/27/15 23:51*	*1*
Nitrobenzene-d5	*61*		*32 - 118*	*11/16/15 16:26*	*11/27/15 23:51*	*1*
Phenol-d5	*54*		*27 - 110*	*11/16/15 16:26*	*11/27/15 23:51*	*1*
Terphenyl-d14	*77*		*10 - 126*	*11/16/15 16:26*	*11/27/15 23:51*	*1*
2,4,6-Tribromophenol	*62*		*39 - 124*	*11/16/15 16:26*	*11/27/15 23:51*	*1*

AWD
12/30/15

TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

Client Sample ID: GM-58A-1115
Date Collected: 11/10/15 16:15
Date Received: 11/11/15 11:55

Lab Sample ID: 680-118880-5
Matrix: Water

5

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		11/16/15 16:26	11/28/15 00:16	1
1-chloro-2,4-dinitrobenzene	9.8	U	9.8		ug/L		11/16/15 16:26	11/28/15 00:16	1
1-Chloro-3-nitrobenzene	9.8	U F1	9.8		ug/L		11/16/15 16:26	11/28/15 00:16	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		11/16/15 16:26	11/28/15 00:16	1
3,4-Dichloronitrobenzene	9.8	U	9.8		ug/L		11/16/15 16:26	11/28/15 00:16	1
2,4-Dichlorophenol	9.8	U	9.8		ug/L		11/16/15 16:26	11/28/15 00:16	1
Nitrobenzene	9.8	U	9.8		ug/L		11/16/15 16:26	11/28/15 00:16	1
2-Nitrobiphenyl	9.8	U	9.8		ug/L		11/16/15 16:26	11/28/15 00:16	1
3-Nitrobiphenyl	9.8	U	9.8		ug/L		11/16/15 16:26	11/28/15 00:16	1
4-Nitrobiphenyl	9.8	U	9.8		ug/L		11/16/15 16:26	11/28/15 00:16	1
Pentachlorophenol	49	U	49		ug/L		11/16/15 16:26	11/28/15 00:16	1
2,4,6-Trichlorophenol	9.8	U	9.8		ug/L		11/16/15 16:26	11/28/15 00:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*42*		*32 - 113*	*11/16/15 16:26*	*11/28/15 00:16*	*1*
2-Fluorophenol	*36*		*26 - 109*	*11/16/15 16:26*	*11/28/15 00:16*	*1*
Nitrobenzene-d5	*46*		*32 - 118*	*11/16/15 16:26*	*11/28/15 00:16*	*1*
Phenol-d5	*42*		*27 - 110*	*11/16/15 16:26*	*11/28/15 00:16*	*1*
Terphenyl-d14	*49*		*10 - 126*	*11/16/15 16:26*	*11/28/15 00:16*	*1*
2,4,6-Tribromophenol	*49*		*39 - 124*	*11/16/15 16:26*	*11/28/15 00:16*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			11/13/15 15:39	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 15:39	1
Methane	1.5		0.58		ug/L			11/13/15 15:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	7.4		0.050		mg/L		11/16/15 09:45	11/16/15 21:49	1
Manganese	0.85		0.010		mg/L		11/16/15 09:45	11/16/15 21:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	59	D	2.0		mg/L			11/16/15 14:46	2
Nitrate as N	2.0		0.050		mg/L			11/11/15 17:04	1
Sulfate	150	D	25		mg/L			11/16/15 14:16	5
Total Organic Carbon	4.7		1.0		mg/L			11/17/15 23:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	430		5.0		mg/L			11/19/15 18:48	1
Carbon Dioxide, Free	16		5.0		mg/L			11/19/15 18:48	1

AWD
12/20/15
TestAmerica Savannah

Client Sample Results

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

Client Sample ID: GM-58A-F(0.2)-1115
Date Collected: 11/10/15 16:15
Date Received: 11/11/15 11:55

Lab Sample ID: 680-118880-6
Matrix: Water

5

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.53		0.050		mg/L		11/16/15 09:45	11/16/15 21:53	1
Manganese, Dissolved	0.84		0.010		mg/L		11/16/15 09:45	11/16/15 21:53	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.6		1.0		mg/L			11/18/15 08:25	1

AWD
12/30/15
TestAmerica Savannah

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

Lab Sample ID: MB 680-410528/18-A
Matrix: Water
Analysis Batch: 412265

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 410528

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U	10		ug/L		11/16/15 16:26	11/29/15 16:54	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		11/16/15 16:26	11/29/15 16:54	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		11/16/15 16:26	11/29/15 16:54	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		11/16/15 16:26	11/29/15 16:54	1
3,4-Dichloronitrobenzene	10	U	10		ug/L		11/16/15 16:26	11/29/15 16:54	1
2,4-Dichlorophenol	10	U	10		ug/L		11/16/15 16:26	11/29/15 16:54	1
Nitrobenzene	10	U	10		ug/L		11/16/15 16:26	11/29/15 16:54	1
2-Nitrobiphenyl	10	U	10		ug/L		11/16/15 16:26	11/29/15 16:54	1
3-Nitrobiphenyl	10	U	10		ug/L		11/16/15 16:26	11/29/15 16:54	1
4-Nitrobiphenyl	10	U	10		ug/L		11/16/15 16:26	11/29/15 16:54	1
Pentachlorophenol	50	U	50		ug/L		11/16/15 16:26	11/29/15 16:54	1
2,4,6-Trichlorophenol	10	U	10		ug/L		11/16/15 16:26	11/29/15 16:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*68*		*32 - 113*	*11/16/15 16:26*	*11/29/15 16:54*	*1*
2-Fluorophenol	*53*		*26 - 109*	*11/16/15 16:26*	*11/29/15 16:54*	*1*
Nitrobenzene-d5	*67*		*32 - 118*	*11/16/15 16:26*	*11/29/15 16:54*	*1*
Phenol-d5	*56*		*27 - 110*	*11/16/15 16:26*	*11/29/15 16:54*	*1*
Terphenyl-d14	*76*		*10 - 126*	*11/16/15 16:26*	*11/29/15 16:54*	*1*
2,4,6-Tribromophenol	*64*		*39 - 124*	*11/16/15 16:26*	*11/29/15 16:54*	*1*

Lab Sample ID: LCS 680-410528/19-A
Matrix: Water
Analysis Batch: 411038

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410528

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	100	58.8		ug/L		59	46 - 97
2,4-Dichlorophenol	100	60.8		ug/L		61	48 - 107
Nitrobenzene	100	58.6		ug/L		59	41 - 105
Pentachlorophenol	200	149		ug/L		74	36 - 143
2,4,6-Trichlorophenol	100	61.6		ug/L		62	49 - 113

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*57*		*32 - 113*
2-Fluorophenol	*45*		*26 - 109*
Nitrobenzene-d5	*58*		*32 - 118*
Phenol-d5	*47*		*27 - 110*
Terphenyl-d14	*69*		*10 - 126*
2,4,6-Tribromophenol	*61*		*39 - 124*

Lab Sample ID: LCS 680-410528/29-A
Matrix: Water
Analysis Batch: 412216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410528

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1-chloro-2,4-dinitrobenzene	100	85.6		ug/L		86	10 - 130
1-Chloro-3-nitrobenzene	100	76.6		ug/L		77	50 - 130

AMD 12/30/15

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

Lab Sample ID: LCS 680-410528/29-A
Matrix: Water
Analysis Batch: 412216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410528

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-chloronitrobenzene / 4-chloronitrobenzene	200	153		ug/L		76	10 - 130
3,4-Dichloronitrobenzene	100	76.8		ug/L		77	10 - 130
2-Nitrobiphenyl	100	82.6		ug/L		83	10 - 130
3-Nitrobiphenyl	100	78.8		ug/L		79	10 - 130
4-Nitrobiphenyl	100	78.6		ug/L		79	10 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*69*		*32 - 113*
2-Fluorophenol	*61*		*26 - 109*
Nitrobenzene-d5	*73*		*32 - 118*
Phenol-d5	*60*		*27 - 110*
Terphenyl-d14	*80*		*10 - 126*
2,4,6-Tribromophenol	*74*		*39 - 124*

Lab Sample ID: LCSD 680-410528/20-A
Matrix: Water
Analysis Batch: 411038

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 410528

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1'-Biphenyl	100	60.1		ug/L		60	46 - 97	2	50
2,4-Dichlorophenol	100	58.6		ug/L		59	48 - 107	4	50
Nitrobenzene	100	58.8		ug/L		59	41 - 105	0	50
Pentachlorophenol	200	147		ug/L		73	36 - 143	1	50
2,4,6-Trichlorophenol	100	60.0		ug/L		60	49 - 113	2	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*57*		*32 - 113*
2-Fluorophenol	*55*		*26 - 109*
Nitrobenzene-d5	*59*		*32 - 118*
Phenol-d5	*51*		*27 - 110*
Terphenyl-d14	*66*		*10 - 126*
2,4,6-Tribromophenol	*64*		*39 - 124*

Lab Sample ID: 680-118880-5 MS
Matrix: Water
Analysis Batch: 412216

Client Sample ID: GM-58A-1115
Prep Type: Total/NA
Prep Batch: 410528

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	9.8	U	99.2	52.7		ug/L		53	46 - 97
2,4-Dichlorophenol	9.8	U	99.2	52.6		ug/L		53	48 - 107
Nitrobenzene	9.8	U	99.2	61.6		ug/L		62	41 - 105
Pentachlorophenol	49	U	198	133		ug/L		67	36 - 143
2,4,6-Trichlorophenol	9.8	U	99.2	52.2		ug/L		53	49 - 113

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*51*		*32 - 113*

AWD 12/30/15
TestAmerica Savannah

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

Lab Sample ID: 680-118880-5 MS
Matrix: Water
Analysis Batch: 412216

Client Sample ID: GM-58A-1115
Prep Type: Total/NA
Prep Batch: 410528

Surrogate	MS %Recovery	MS Qualifier	Limits
2-Fluorophenol	44		26 - 109
Nitrobenzene-d5	57		32 - 118
Phenol-d5	46		27 - 110
Terphenyl-d14	40		10 - 126
2,4,6-Tribromophenol	53		39 - 124

Lab Sample ID: 680-118880-5 MS
Matrix: Water
Analysis Batch: 412216

Client Sample ID: GM-58A-1115
Prep Type: Total/NA
Prep Batch: 410528

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1-chloro-2,4-dinitrobenzene	9.8	U	99.0	76.2		ug/L		77	10 - 130
1-Chloro-3-nitrobenzene	9.8	U F1	99.0	62.5		ug/L		63	50 - 130
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	198	130		ug/L		66	10 - 130
3,4-Dichloronitrobenzene	9.8	U	99.0	62.0		ug/L		63	10 - 130
2-Nitrobiphenyl	9.8	U	99.0	69.1		ug/L		70	10 - 130
3-Nitrobiphenyl	9.8	U	99.0	73.6		ug/L		74	10 - 130
4-Nitrobiphenyl	9.8	U	99.0	73.4		ug/L		74	10 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
2-Fluorobiphenyl	55		32 - 113
2-Fluorophenol	43		26 - 109
Nitrobenzene-d5	58		32 - 118
Phenol-d5	47		27 - 110
Terphenyl-d14	40		10 - 126
2,4,6-Tribromophenol	58		39 - 124

Lab Sample ID: 680-118880-5 MSD
Matrix: Water
Analysis Batch: 412216

Client Sample ID: GM-58A-1115
Prep Type: Total/NA
Prep Batch: 410528

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1'-Biphenyl	9.8	U	97.1	45.8		ug/L		47	46 - 97	14	50
2,4-Dichlorophenol	9.8	U	97.1	46.5		ug/L		48	48 - 107	12	50
Nitrobenzene	9.8	U	97.1	49.1		ug/L		51	41 - 105	23	50
Pentachlorophenol	49	U	194	149		ug/L		77	36 - 143	11	50
2,4,6-Trichlorophenol	9.8	U	97.1	53.7		ug/L		55	49 - 113	3	50

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorobiphenyl	45		32 - 113
2-Fluorophenol	35		26 - 109
Nitrobenzene-d5	47		32 - 118
Phenol-d5	41		27 - 110
Terphenyl-d14	72		10 - 126
2,4,6-Tribromophenol	63		39 - 124

AWD 12/30/15
TestAmerica Savannah

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

Lab Sample ID: 680-118880-5 MSD
Matrix: Water
Analysis Batch: 412216

Client Sample ID: GM-58A-1115
Prep Type: Total/NA
Prep Batch: 410528

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1-chloro-2,4-dinitrobenzene	9.8	U	103	49.7		ug/L		48	10 - 130	42	50
1-Chloro-3-nitrobenzene	9.8	U F1	103	41.5	F1	ug/L		40	50 - 130	40	50
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	206	86.2		ug/L		42	10 - 130	41	50
3,4-Dichloronitrobenzene	9.8	U	103	41.5		ug/L		40	10 - 130	40	50
2-Nitrobiphenyl	9.8	U	103	48.4		ug/L		47	10 - 130	35	50
3-Nitrobiphenyl	9.8	U	103	50.3		ug/L		49	10 - 130	38	50
4-Nitrobiphenyl	9.8	U	103	48.9		ug/L		47	10 - 130	40	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*34*		*32 - 113*
2-Fluorophenol	*32*		*26 - 109*
Nitrobenzene-d5	*40*		*32 - 118*
Phenol-d5	*37*		*27 - 110*
Terphenyl-d14	*31*		*10 - 126*
2,4,6-Tribromophenol	*39*		*39 - 124*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-410240/10
Matrix: Water
Analysis Batch: 410240

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			11/13/15 11:48	1
Ethylene	1.0	U	1.0		ug/L			11/13/15 11:48	1
Methane	0.58	U	0.58		ug/L			11/13/15 11:48	1

Lab Sample ID: LCS 680-410240/3
Matrix: Water
Analysis Batch: 410240

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	291		ug/L		101	75 - 125
Ethylene	269	270		ug/L		100	75 - 125
Methane	154	145		ug/L		94	75 - 125

Lab Sample ID: LCSD 680-410240/4
Matrix: Water
Analysis Batch: 410240

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	253		ug/L		88	75 - 125	14	30
Ethylene	269	236		ug/L		88	75 - 125	14	30
Methane	154	127		ug/L		82	75 - 125	14	30

AWD 12/30/15
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Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-410503/1-A
Matrix: Water
Analysis Batch: 410766

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 410503

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		11/16/15 09:45	11/16/15 20:26	1
Iron, Dissolved	0.050	U	0.050		mg/L		11/16/15 09:45	11/16/15 20:26	1
Manganese	0.010	U	0.010		mg/L		11/16/15 09:45	11/16/15 20:26	1
Manganese, Dissolved	0.010	U	0.010		mg/L		11/16/15 09:45	11/16/15 20:26	1

Lab Sample ID: LCS 680-410503/2-A
Matrix: Water
Analysis Batch: 410766

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 410503

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	4.93		mg/L		99	80 - 120
Iron, Dissolved	5.00	4.93		mg/L		99	80 - 120
Manganese	0.500	0.502		mg/L		100	80 - 120
Manganese, Dissolved	0.500	0.502		mg/L		100	80 - 120

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-411279/5
Matrix: Water
Analysis Batch: 411279

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			11/19/15 17:27	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/19/15 17:27	1

Lab Sample ID: LCS 680-411279/6
Matrix: Water
Analysis Batch: 411279

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	248	239		mg/L		96	80 - 120

Lab Sample ID: LCSD 680-411279/32
Matrix: Water
Analysis Batch: 411279

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	248	274		mg/L		111	80 - 120	14	30

Lab Sample ID: 680-118880-5 DU
Matrix: Water
Analysis Batch: 411279

Client Sample ID: GM-58A-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	430		425		mg/L		0.8	30
Carbon Dioxide, Free	16		14.5		mg/L		9	30

AWD 12/30/15
TestAmerica Savannah

Method: 325.2 - Chloride

Lab Sample ID: MB 680-410962/49
Matrix: Water
Analysis Batch: 410962

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			11/17/15 10:17	1

Lab Sample ID: LCS 680-410962/19
Matrix: Water
Analysis Batch: 410962

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	26.0		mg/L		104	85 - 115

Lab Sample ID: LCSD 680-410962/41
Matrix: Water
Analysis Batch: 410962

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	25.0	26.2		mg/L		105	85 - 115	1	30

Lab Sample ID: 680-118880-5 DU
Matrix: Water
Analysis Batch: 410962

Client Sample ID: GM-58A-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	59		59.1		mg/L		0.9	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-409992/13
Matrix: Water
Analysis Batch: 409992

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			11/11/15 16:45	1

Lab Sample ID: MB 680-409992/31
Matrix: Water
Analysis Batch: 409992

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			11/11/15 17:06	1

Lab Sample ID: LCS 680-409992/16
Matrix: Water
Analysis Batch: 409992

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.510		mg/L		102	75 - 125
Nitrate Nitrite as N	1.00	1.00		mg/L		100	90 - 110
Nitrite as N	0.500	0.490		mg/L		98	90 - 110

AWD 12/3/15
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Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 680-409992/32
Matrix: Water
Analysis Batch: 409992

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.483		mg/L		97	75 - 125
Nitrate Nitrite as N	1.00	1.00		mg/L		100	90 - 110
Nitrite as N	0.500	0.517		mg/L		103	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-410965/49
Matrix: Water
Analysis Batch: 410965

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			11/17/15 10:11	1

Lab Sample ID: LCS 680-410965/40
Matrix: Water
Analysis Batch: 410965

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	19.2		mg/L		96	75 - 125

Lab Sample ID: LCSD 680-410965/30
Matrix: Water
Analysis Batch: 410965

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	20.0	19.1		mg/L		95	75 - 125	0	30

Lab Sample ID: 680-118880-5 DU
Matrix: Water
Analysis Batch: 410965

Client Sample ID: GM-58A-1115
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	150		155		mg/L		1	30

Method: 415.1 - DOC

Lab Sample ID: MB 680-410972/78
Matrix: Water
Analysis Batch: 410972

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			11/18/15 07:06	1

Lab Sample ID: LCS 680-410972/79
Matrix: Water
Analysis Batch: 410972

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	19.6		mg/L		98	80 - 120

Method: 415.1 - DOC (Continued)

Lab Sample ID: 680-118880-2 MS
Matrix: Water
Analysis Batch: 410972

Client Sample ID: GM-31A-F(0.2)-1115
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	6.1		20.0	24.0		mg/L		89	80 - 120

Lab Sample ID: 680-118880-2 MSD
Matrix: Water
Analysis Batch: 410972

Client Sample ID: GM-31A-F(0.2)-1115
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	6.1		20.0	24.8		mg/L		93	80 - 120	3	20

Method: 415.1 - TOC

Lab Sample ID: MB 680-410971/24
Matrix: Water
Analysis Batch: 410971

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			11/17/15 17:34	1

Lab Sample ID: LCS 680-410971/25
Matrix: Water
Analysis Batch: 410971

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.7		mg/L		99	80 - 120

Lab Sample ID: LLCS 680-410971/5
Matrix: Water
Analysis Batch: 410971

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.00	1.35		mg/L		135	50 - 150

AMD 12/30/15
TestAmerica Savannah

QC Association Summary

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

GC/MS Semi VOA

Prep Batch: 410528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118880-1	GM-31A-1115	Total/NA	Water	3520C	
680-118880-3	GM-31A-1115-AD	Total/NA	Water	3520C	
680-118880-4	GM-31A-1115-EB	Total/NA	Water	3520C	
680-118880-5	GM-58A-1115	Total/NA	Water	3520C	
680-118880-5 MS	GM-58A-1115	Total/NA	Water	3520C	
680-118880-5 MS	GM-58A-1115	Total/NA	Water	3520C	
680-118880-5 MSD	GM-58A-1115	Total/NA	Water	3520C	
680-118880-5 MSD	GM-58A-1115	Total/NA	Water	3520C	
LCS 680-410528/19-A	Lab Control Sample	Total/NA	Water	3520C	
LCS 680-410528/29-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 680-410528/20-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 680-410528/18-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 411038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-410528/19-A	Lab Control Sample	Total/NA	Water	8270D	410528
LCSD 680-410528/20-A	Lab Control Sample Dup	Total/NA	Water	8270D	410528

Analysis Batch: 412216

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118880-1	GM-31A-1115	Total/NA	Water	8270D	410528
680-118880-3	GM-31A-1115-AD	Total/NA	Water	8270D	410528
680-118880-4	GM-31A-1115-EB	Total/NA	Water	8270D	410528
680-118880-5	GM-58A-1115	Total/NA	Water	8270D	410528
680-118880-5 MS	GM-58A-1115	Total/NA	Water	8270D	410528
680-118880-5 MS	GM-58A-1115	Total/NA	Water	8270D	410528
680-118880-5 MSD	GM-58A-1115	Total/NA	Water	8270D	410528
680-118880-5 MSD	GM-58A-1115	Total/NA	Water	8270D	410528
LCS 680-410528/29-A	Lab Control Sample	Total/NA	Water	8270D	410528

Analysis Batch: 412265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-410528/18-A	Method Blank	Total/NA	Water	8270D	410528

GC VOA

Analysis Batch: 410240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118880-1	GM-31A-1115	Total/NA	Water	RSK-175	
680-118880-5	GM-58A-1115	Total/NA	Water	RSK-175	
LCS 680-410240/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-410240/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-410240/10	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 410503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118880-1	GM-31A-1115	Total Recoverable	Water	3005A	
680-118880-2	GM-31A-F(0.2)-1115	Dissolved	Water	3005A	

AMD 12/30/15
TestAmerica Savannah

QC Association Summary

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

Metals (Continued)

Prep Batch: 410503 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118880-5	GM-58A-1115	Total Recoverable	Water	3005A	
680-118880-6	GM-58A-F(0.2)-1115	Dissolved	Water	3005A	
LCS 680-410503/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-410503/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 410766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118880-1	GM-31A-1115	Total Recoverable	Water	6010C	410503
680-118880-2	GM-31A-F(0.2)-1115	Dissolved	Water	6010C	410503
680-118880-5	GM-58A-1115	Total Recoverable	Water	6010C	410503
680-118880-6	GM-58A-F(0.2)-1115	Dissolved	Water	6010C	410503
LCS 680-410503/2-A	Lab Control Sample	Total Recoverable	Water	6010C	410503
MB 680-410503/1-A	Method Blank	Total Recoverable	Water	6010C	410503

General Chemistry

Analysis Batch: 409992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118880-1	GM-31A-1115	Total/NA	Water	353.2	
680-118880-5	GM-58A-1115	Total/NA	Water	353.2	
LCS 680-409992/16	Lab Control Sample	Total/NA	Water	353.2	
LCS 680-409992/32	Lab Control Sample	Total/NA	Water	353.2	
MB 680-409992/13	Method Blank	Total/NA	Water	353.2	
MB 680-409992/31	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 410962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118880-1	GM-31A-1115	Total/NA	Water	325.2	
680-118880-5	GM-58A-1115	Total/NA	Water	325.2	
680-118880-5 DU	GM-58A-1115	Total/NA	Water	325.2	
LCS 680-410962/19	Lab Control Sample	Total/NA	Water	325.2	
LCSD 680-410962/41	Lab Control Sample Dup	Total/NA	Water	325.2	
MB 680-410962/49	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 410965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118880-1	GM-31A-1115	Total/NA	Water	375.4	
680-118880-5	GM-58A-1115	Total/NA	Water	375.4	
680-118880-5 DU	GM-58A-1115	Total/NA	Water	375.4	
LCS 680-410965/40	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-410965/30	Lab Control Sample Dup	Total/NA	Water	375.4	
MB 680-410965/49	Method Blank	Total/NA	Water	375.4	

Analysis Batch: 410971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118880-1	GM-31A-1115	Total/NA	Water	415.1	
680-118880-5	GM-58A-1115	Total/NA	Water	415.1	
LCS 680-410971/25	Lab Control Sample	Total/NA	Water	415.1	
LLCS 680-410971/5	Lab Control Sample	Total/NA	Water	415.1	
MB 680-410971/24	Method Blank	Total/NA	Water	415.1	

AWD 12/30/15
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General Chemistry (Continued)

Analysis Batch: 410972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118880-2	GM-31A-F(0.2)-1115	Dissolved	Water	415.1	
680-118880-2 MS	GM-31A-F(0.2)-1115	Dissolved	Water	415.1	
680-118880-2 MSD	GM-31A-F(0.2)-1115	Dissolved	Water	415.1	
680-118880-6	GM-58A-F(0.2)-1115	Dissolved	Water	415.1	
LCS 680-410972/79	Lab Control Sample	Dissolved	Water	415.1	
MB 680-410972/78	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 411279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118880-1	GM-31A-1115	Total/NA	Water	310.1	
680-118880-5	GM-58A-1115	Total/NA	Water	310.1	
680-118880-5 DU	GM-58A-1115	Total/NA	Water	310.1	
LCS 680-411279/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-411279/32	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-411279/5	Method Blank	Total/NA	Water	310.1	

AWD 12/30/15
TestAmerica Savannah

Lab Chronicle

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

Client Sample ID: GM-31A-1115

Lab Sample ID: 680-118880-1
Matrix: Water
Date Collected: 11/10/15 14:00
Date Received: 11/11/15 11:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			996.5 mL	1.0 mL	410528	11/16/15 16:26	RBS	TAL SAV
Total/NA	Analysis	8270D		1	996.5 mL	1.0 mL	412216	11/27/15 23:03	JEM	TAL SAV
Total/NA	Analysis	RSK-175		1	17 mL	17 mL	410240	11/13/15 15:24	SMC	TAL SAV
Total Recoverable	Prep	3005A			50 mL	50 mL	410503	11/16/15 09:45	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	410766	11/16/15 21:33	BCB	TAL SAV
Total/NA	Analysis	310.1		1			411279	11/19/15 18:38	DAM	TAL SAV
Total/NA	Analysis	325.2		1	2 mL	2 mL	410962	11/16/15 12:03	JME	TAL SAV
Total/NA	Analysis	353.2		1	2 mL	2 mL	409992	11/11/15 17:03	GRX	TAL SAV
Total/NA	Analysis	375.4		5	2 mL	2 mL	410965	11/16/15 14:59	JME	TAL SAV
Total/NA	Analysis	415.1		1	40 mL	40 mL	410971	11/17/15 23:41	KMB	TAL SAV

Client Sample ID: GM-31A-F(0.2)-1115

Lab Sample ID: 680-118880-2
Matrix: Water
Date Collected: 11/10/15 14:00
Date Received: 11/11/15 11:55

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	410503	11/16/15 09:45	CRW	TAL SAV
Dissolved	Analysis	6010C		1	50 mL	50 mL	410766	11/16/15 21:45	BCB	TAL SAV
Dissolved	Analysis	415.1		1		40 mL	410972	11/18/15 07:47	KMB	TAL SAV

Client Sample ID: GM-31A-1115-AD

Lab Sample ID: 680-118880-3
Matrix: Water
Date Collected: 11/10/15 14:00
Date Received: 11/11/15 11:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			1002.2 mL	1.0 mL	410528	11/16/15 16:26	RBS	TAL SAV
Total/NA	Analysis	8270D		1	1002.2 mL	1.0 mL	412216	11/27/15 23:27	JEM	TAL SAV

Client Sample ID: GM-31A-1115-EB

Lab Sample ID: 680-118880-4
Matrix: Water
Date Collected: 11/10/15 14:35
Date Received: 11/11/15 11:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			1035.8 mL	1.0 mL	410528	11/16/15 16:26	RBS	TAL SAV
Total/NA	Analysis	8270D		1	1035.8 mL	1.0 mL	412216	11/27/15 23:51	JEM	TAL SAV

Client Sample ID: GM-58A-1115

Lab Sample ID: 680-118880-5
Matrix: Water
Date Collected: 11/10/15 16:15
Date Received: 11/11/15 11:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			508.4 mL	0.5 mL	410528	11/16/15 16:26	RBS	TAL SAV

TestAmerica Savannah

AWD 12/30/15

Lab Chronicle

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

Client Sample ID: GM-58A-1115

Date Collected: 11/10/15 16:15
Date Received: 11/11/15 11:55

Lab Sample ID: 680-118880-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270D		1	508.4 mL	0.5 mL	412216	11/28/15 00:16	JEM	TAL SAV
Total/NA	Analysis	RSK-175		1	17 mL	17 mL	410240	11/13/15 15:39	SMC	TAL SAV
Total Recoverable	Prep	3005A			50 mL	50 mL	410503	11/16/15 09:45	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	410766	11/16/15 21:49	BCB	TAL SAV
Total/NA	Analysis	310.1		1			411279	11/19/15 18:48	DAM	TAL SAV
Total/NA	Analysis	325.2		2	2 mL	2 mL	410962	11/16/15 14:46	JME	TAL SAV
Total/NA	Analysis	353.2		1	2 mL	2 mL	409992	11/11/15 17:04	GRX	TAL SAV
Total/NA	Analysis	375.4		5	2 mL	2 mL	410985	11/16/15 14:16	JME	TAL SAV
Total/NA	Analysis	415.1		1	40 mL	40 mL	410971	11/17/15 23:54	KMB	TAL SAV

Client Sample ID: GM-58A-F(0.2)-1115

Date Collected: 11/10/15 16:15
Date Received: 11/11/15 11:55

Lab Sample ID: 680-118880-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	410503	11/16/15 09:45	CRW	TAL SAV
Dissolved	Analysis	6010C		1	50 mL	50 mL	410766	11/16/15 21:53	BCB	TAL SAV
Dissolved	Analysis	415.1		1		40 mL	410972	11/18/15 08:25	KMB	TAL SAV

Laboratory References:

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

AWD 12/2/15
TestAmerica Savannah

Certification Summary

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

Laboratory: TestAmerica Savannah

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	200022	11-30-15 *

The following analytes are included in this report, but are not certified under this certification:

Analysis Method	Prep Method	Matrix	Analyte
8270D	3520C	Water	4-Nitrobiphenyl

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
310.1		Water	Alkalinity
310.1		Water	Carbon Dioxide, Free
325.2		Water	Chloride
375.4		Water	Sulfate
415.1		Water	Dissolved Organic Carbon
415.1		Water	Total Organic Carbon
8270D	3520C	Water	1,1'-Biphenyl
8270D	3520C	Water	1-chloro-2,4-dinitrobenzene
8270D	3520C	Water	1-Chloro-3-nitrobenzene
8270D	3520C	Water	2-chloronitrobenzene / 4-chloronitrobenzene
8270D	3520C	Water	2-Nitrobiphenyl
8270D	3520C	Water	3,4-Dichloronitrobenzene
8270D	3520C	Water	3-Nitrobiphenyl
RSK-175		Water	Ethane
RSK-175		Water	Ethylene
RSK-175		Water	Methane

* Certification renewal pending - certification considered valid.

AWD 12/30/15
TestAmerica Savannah

Method Summary

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

TestAmerica Job ID: 680-118880-1
SDG: KOM030

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

AWD 12/30/15
TestAmerica Savannah

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Gardner~~	Date: 11/10/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	**Analysis Turnaround Time**			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 3Q15 Drum Site GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	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-1115	11/10/15	1410	G	W	12	N		2	1	1	1	3	1	3			2 rockers
GM-31A-F(0.2)-1115	"	1400	"	"	4	Y									1	3	
GM-31A-1115-AD	"	1400	"	"	2	N		2									
GM-31A-1115-EB	"	1435	"	"	2	N		2									
GM-58A-1115	"	1615	"	"	12	N		2	1	1	1	3	1	3			
GM-58A-F(0.2)-1115	"	1615	"	"	4	Y									1	3	
GM-58A-1115-MS	"	1615	"	"	2	N		2									
GM-58A-1115-MSD	"	1615	"	"	2	N		2									

680-118880 Chain of Custody

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

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

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

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

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

Special Instructions/QC Requirements & Comments:

680-118880 2.8/3.0(CF) 3.2/3.4°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 799355 / 799864	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder	11/10/15 1600			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
				TA SAV.	11-11-15 1155

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

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Shipped 11/12/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-118880-1
SDG Number: KOM030

Login Number: 118880
List Number: 1
Creator: Banda, Christy S

List Source: TestAmerica Savannah

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

MWD 12/30/15

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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Golder Associates