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April 21, 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 1<sup>st</sup> Quarter 2016 Data Report Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Ms. Bury:

Enclosed please find the Route 3 Drum Site Groundwater Monitoring Program 1<sup>st</sup> Quarter 2016 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,

Solo In Killi

Gerald M. Rinaldi Manager, Remediation Services

Enclosure

cc: Distribution List

### **DISTRIBUTION LIST**

Route 3 Drum Site Groundwater Monitoring Program 1<sup>st</sup> Quarter 2016 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

1<sup>st</sup> QUARTER 2016 DATA 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

April 2016

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- Appendix D Groundwater Analytical Results (including data validation reports)



### 1.0 INTRODUCTION

Golder Associates Inc. (Golder) is pleased to submit this report summarizing the 1<sup>st</sup> Quarter 2016 (1Q16) 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 1Q16 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 1<sup>st</sup> 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 1Q16 sampling activities on February 18 and 19, 2016. Activities were performed in general accordance with the Work Plan.

### 2.1 Water Level Measurement

Prior to sampling during the 1Q16 event, Golder performed a synoptic round of water level and total depth measurements at 77 monitoring wells and piezometers on February 16 and 17, 2016. 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 1Q16 sampling event, NAPL was not detected in monitoring wells or piezometers. Total depths are measured during the 1<sup>st</sup> quarter of each year. The 1Q16 well gauging information is shown on Table 1.

### 2.2 Groundwater Sample Collection

Monitoring wells sampled during the 1Q16 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<sup>™</sup> 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 1Q16 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 (1<sup>st</sup> Quarter), 2016 (0216)
- "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 two (2) sample delivery groups (SDG) as follows:

Sample Delivery Group (SDG)	Sample Identification					
KOM031	GM-58A-0216					
	GM-31A-0216					
KOM032	GM-31A-0216-AD					
	GM-31A-0216-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 well GM-58A during the 1Q16 sampling event. The SVOC 2-nitrobiphenyl was detected in GM-31A and GM-31A-AD at concentrations of 10  $\mu$ g/L and 12  $\mu$ g/L, respectively. Groundwater analytical data for SVOCs and MNA parameters is presented in Table 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.

Indebendke

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

Mark N. efallant

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





# ILLINOIS ROUTE 3 DRUM SITE PROJECT ILLINOIS ROUTE 3 DRUM SITE GROUNDWATER SAMPLING 1ST QUARTER 2016 DATA REPORT TITLE MONITORING WELL LOCATIONS AND GROUNDWATER ELEVATION MAP PROJECT No. 140-3345 FIGURE PHASE 0027 Rev. 0

TABLES

### Table 1 Monitoring Well Gauging Information 1Q16 Route 3 Drum Site Monitoring Program Solutia Inc., W.G. Krummrich Facility Sauget, Illinois

		Mor	nitoring Well	Construction I	1Q16 - Febraury 16 and 17, 2016					
Well Identification	Ground	Top of	Top of	Bottom of	Top of	Bottom of	Water Level Depth to (ft btoc) (ft btoc)			Water Loval
	Surface	Casing	Screen	Screen	Screen	Screen			Total Depth <sup>2</sup>	
	Elevation <sup>1</sup>	Elevation <sup>1</sup>	Depth	Depth	Elevation <sup>1</sup>	Elevation <sup>1</sup>			(ft btoc)	Elevation.
	(ft)	(ft)	(ft bgs)	(ft bgs)	(ft)	(ft)				(11)
SHU 395-380 ft NAV	D 88									
GM-31A	416.63	418.63	19.00	39.00	397.63	377.63	18.12	NP	39.99	400.51
GM-58A	412.24	414.24	19.40	39.40	392.84	372.84	13.65	NP	40.84	400.59

### Notes

ft - feet

bgs - below ground surface

btoc - below top of casing

NP - no product observed

SHU - shallow hydrogeologic unit

<sup>1</sup> - Elevations based on North American Vertical Datum (NAVD) 88 datum.

<sup>2</sup> - Total depths are measured annually during the first quarter of each year.

Prepared By: PJJ 03/18/2016 Checked By: EPW 03/18/2016 Reviewed by: AWD 04/06/2016

### Table 2 Groundwater Analytical Results 1Q16 Route 3 Drum Site Monitoring Program Solutia Inc., W.G. Krummrich Facility Sauget, Illinois

							SVOCs	s (μg/L)					
Sample Identification	Sample Date	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-0216	2/19/2016	<10	<10	<10	<10	<20	10	<10	<10	<10	<10	<10	<50
GM-31A-0216-AD	2/19/2016	<9.9	<9.9	<9.9	<9.9	<20	12	<9.9	<9.9	<9.9	<9.9	<9.9	<50
GM-58A-0216	2/18/2016	<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

SHU - shallow hydrogeologic unit

**Bold** - indicates detection greater than reporting limit

Prepared By: EPW 03/21/2016 Checked By: JS 03/31/2016 Reviewed By: AWD 04/06/2016

#### Table 3 1Q16 Route 3 Drum Site Monitoring Program Solutia Inc., W.G. Krummrich Facility Sauget, Illinois

								1	Aonitored Nat	ural Attenuat	ion Paramete	rs						
Sample Identification	Sample Date	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-0216	2/19/2016	350	41	32	0.09	<1.0	<1.0	-	1.4	-	0.46	-	1.9	2.7 D	100 D	2.9	-	73.80
GM-31A-F(0.2)-0216	2/19/2016	-		-	-	-	-	0.0	-	<0.050	-	0.45	-	-	-		2.6	-
GM-58A-0216	2/18/2016	420	31	62 D	0.06	<1.0	<1.0	-	0.12		1.0	-	1.2	0.75	220 D	3.1	-	74.79
GM-58A-F(0.2)-0216	2/18/2016	-	-	-	-	-	-	0.0	-	2.6	-	1.0	-	-	-	-	2.9	-

#### Notes

Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) values represent the final field measurements prior to sampling (In-Situ - SmartTroll<sup>134</sup>)

Ferrous Iron was field measured using a 0.2  $\mu m$  field filtered sample (Hach DR-890 Colorimeter)

F(0.2) - sample was field filtered using a 0.2  $\,\mu m\,$  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 03/21/2016 Checked By: JS 03/31/2016 Reviewed By: AWD 04/06/2016 APPENDIX A GROUNDWATER PURGING AND SAMPLING FORMS

🕲 In-Situ	Inc.	<b>SmartTroll</b> 2/19/2016	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	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	Rt. 3 Drum	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	39.99 ft	Calculated Sample Rate	87 sec
Depth to Top of Screen	21.00 ft	Sample Rate	87 sec
Screen Length	20 ft	Stabilized Drawdown	0.00 ft
Depth to Water	18.12 ft		

# Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Sottings			+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
Stabilization Settings				+/-3%	+/-10%	+/-10%	
	9:42:10	16.09	6.85	949.52	24.60	0.11	76.73
	9:43:17	16.08	6.85	950.27	24.40	0.10	75.61
Last 5 Readings	9:44:25	16.09	6.85	949.59	28.40	0.09	79.38
	9:45:32	16.09	6.85	949.52	26.10	0.09	76.54
	9:46:39	16.09	6.85	948.29	24.20	0.09	73.80
		0.01	0.00	-0.68	4.00	-0.01	3.77
Variance in Last 3 Readings		0.00	0.00	-0.07	-2.30	0.00	-2.84
		0.00	0.00	-1.23	-1.90	0.00	-2.74

Notes:

🕲 In-Situ	Inc.	<b>SmartTroll</b> 2/18/2016	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	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	Rt. 3 Drum	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	40.84 ft	Calculated Sample Rate	71 sec
Depth to Top of Screen	21.40 ft	Sample Rate	71 sec
Screen Length	20 ft	Stabilized Drawdown	0.00 ft
Depth to Water	13.65 ft		

# Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Sottings			+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
Stabilization Settings				+/-3%	+/-10%	+/-10%	
	12:51:35	14.65	6.88	1195.35	60.60	0.06	75.51
	12:52:46	14.69	6.88	1203.66	61.00	0.06	74.61
Last 5 Readings	12:53:58	14.67	6.88	1202.48	51.20	0.06	71.66
	12:55:09	14.73	6.87	1204.99	51.80	0.06	73.67
	12:56:20	14.79	6.87	1199.29	55.50	0.06	74.79
		-0.02	0.00	-1.18	-9.80	0.00	-2.95
Variance in Last 3 Readings		0.06	-0.01	2.51	0.60	0.00	2.01
		0.06	0.00	-5.70	3.70	0.00	1.12

Notes:

APPENDIX B CHAIN-OF-CUSTODY

### TestAmerica Savannah

# Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

5102 LaRoche Avenue Savannah, GA 31404 Phone (912) 354-7858 Fax (912) 352-0165

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Client Contact Emily White Samantha DI GOSO	Phone 036 -	724-91	91	E-Mail. michele.ke	ersey@i	testame	ricainc.	com							Page: Page MAA I OF	-1
Company Golder Associates Inc.							Ana	lysis	Rec	uest	ted				Job #	
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WGK Route 3 Drum Site O&M	68005355			ltecky				Carbo		Id Filt				ntain	L-EDA Z	- other (specify)
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Page 21 of 24

# Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

hope 912 354 7858 fax	
avannah, GA 31404	

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Golder Associates Inc	Tel/F	ax: 6	36-724-91	91			Lab	Соп	tact	t: Mic	chele	Kers	ey		Carrie	r: Fed	Ex				of COCs	
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(636) 724-9191 Phone		Т	AT if different	t from Below §	Standard		1	z			<sup>b</sup>			0				-			Walk-in Client:	9
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Possible Hazard Identification:   Are any samples from a listed EPA Hazardous Waste? Please L   Comments Section if the lab is to dispose of the sample.   Image: Skin Impact   Image: Skin Impact	list an	y EPA	Waste Co	odes for the	sample	in the		Samp	ole D Re	Dispo Dispo	to Clier	A fee	e may	/ be	asses Disposa	sed if	samp	les a	re re	taine hive fo	d longer than 1 month)	
Special Instructions/QC Requirements & Comments:			14. firstin																			
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Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013



APPENDIX C QUALITY ASSURANCE REPORT



# QUALITY ASSURANCE REPORT

1<sup>st</sup> QUARTER 2016 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

April 2016

A world of capabilities delivered locally 140-3345



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140-3345

### **1.0 INTRODUCTION**

Golder Associates Inc. (Golder) completed a review of analytical data for the groundwater samples collected on February 18 and 19, 2016 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 1<sup>st</sup> Quarter 2016 (1Q16) 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 two (2) sample delivery groups (SDGs) as described in the table below:

Sample Delivery Group (SDG)	Sample Identification
KOM031	GM-58A-0216
	GM-31A-0216
KOM032	GM-31A-0216-AD
	GM-31A-0216-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, <u>Test Methods for Evaluating Solid Waste</u>, Revision 6 contained in Final Update III August 2002 and listed below:

- SVOCs were analyzed using <u>USEPA SW-846 Method 8270D Semi-Volatile Organic</u> <u>Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)</u>
- Total and Dissolved Iron and Manganese analyzed by <u>USEPA SW-846 Method 6010C</u> <u>Inductively Coupled Plasma-Atomic Emission Spectrometry</u>

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 <u>USEPA Method 325.2 by Automated Colorimetry</u>



- Nitrogen, Nitrate analyzed by <u>USEPA Method 353.2 by Automated Colorimetry</u>
- Sulfate analyzed by <u>USEPA Method 375.4 by Spectrophotometer</u>
- 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 SDGs were prepared as Level IV data report packages 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
- X Surrogate is outside 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 two (2) data packages or SDGs (KOM031 and KOM032), 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 Narratives, chain-of-custodies, 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 1Q16 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-tribromophenol, prior to analysis, to evaluate overall laboratory performance. Surrogate compound 2,4,6-tribromophenol was recovered low in sample GM-58A, 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.

### 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 1Q16 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 1Q16 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 SDGs 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 two (2) data packages or SDGs (KOM031 and KOM032), and were prepared and analyzed using the following methods:

- Total and Dissolved Iron and Manganese analyzed by <u>USEPA Method 6010C Inductively</u> <u>Coupled Plasma-Atomic Emission Spectrometry</u>
- Dissolved Gases analyzed by Method RSK-175
- Alkalinity and Free Carbon Dioxide analyzed by USEPA Method 310.1 by Titration
- Chloride analyzed by <u>USEPA Method 325.2 by Automated Colorimetry</u>
- Nitrogen, Nitrate analyzed by <u>USEPA Method 353.2 by Automated Colorimetry</u>
- 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 Narratives, chain-of-custodies, 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. Results were within accuracy and precision criteria.

### 3.5 Results Reported From Dilutions

Samples in the SDGs required dilutions due to high levels of target analytes nitrate, 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 1Q16 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	Nitrate, 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) SDG KOM031 Sample Results from:

GM-58A



140-3345

Level IV Data Validation Summary Solutia Inc., W.G. Krummrich, Sauget, Illinois 1Q16 Route 3 Drum Site Monitoring Program

Company Name: <u>Golder Associates</u> Project Name: <u>WGK-1Q16 DRUM</u> Reviewer: <u>A. Derhake</u> Laboratory: <u>TestAmerica</u> SDG#: <u>KOM031</u> Matrix: Water Project Manager: <u>A. Derhake</u> Project Number: <u>140-3345</u> Sample Date: <u>February 2016</u>

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

### Sample Names: GM-58A-0216 and GM-58A-F(0.2)-0216

Field	YES	NO	NA	
a)	Sampling dates noted?	$\boxtimes$		
b)	Does the laboratory narrative indicate deficiencies?	$\boxtimes$		

#### **Comments:**

**SVOC:** Sample GM-58A-0216 contained an allowable number of surrogate compounds outside limits. Results have been reported and qualified. 1,1'-Biphenyl, 2,4,6-Trichlorophenol and 2,4-Dichlorophenol exceeded the recovery criteria low for the MS and MSD of sample GM-58A-0216MS in batch 423974.

### Dissolved Gases: No deficiencies noted.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Sample GM-58A-0216 required dilution prior to analysis, reporting limits have been adjusted accordingly.

### Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Sample GM-58A-0216 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

### Chain-of-Custody (COC)

a) b)	Was the COC signed by both field and laboratory personnel? Were samples received in good condition?	$\boxtimes$		
Co	mments: Samples were received at 2.8°C, within the 4°C +/- 2°C criteria.			
Gene	ral	YES	NO	NA
a)	Were hold times met for sample analysis?	$\boxtimes$		
b)	Were the correct preservatives used?	$\boxtimes$		
c)	Was the correct method used?	$\boxtimes$		
d)	Any sample dilutions noted?	$\boxtimes$		
Со	nments: Sample GM-58A-0216 required dilution prior to sulfate and chloride analyses.			



YES NO NA
	April 2016 2			140-3345
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?	$\boxtimes$		
b)	Does DFTPP meet the ion abundance criteria?	$\boxtimes$		
c)	Internal Standard retention times and areas met appropriate criteria?	$\boxtimes$		
Com	ments: None			
Calibra	ations	YES	NO	NA
a)	Initial calibration analyzed at the appropriate frequency and met the appropriate standards?	$\boxtimes$		
b)	Continuing calibrations analyzed at the appropriate frequency and met the appropriate standards	?		
		$\boxtimes$		
c)	Initial calibration verifications and blanks analyzed at the appropriate frequency and met the appr	opriate	stanc	lards?
		$\bowtie$		
d)	Continuing calibration verifications and blanks analyzed at the appropriate frequency and met the	appro	priate	standards
Со	nments: Analytes of interested met calibration standards.		$\boxtimes$	
Blank	s	YES	NO	NA
a)	- Were blanks (trip, equipment, method) performed at required frequency?			
b)	Were analytes detected in any blanks?			
Com	ments: None			
Natrix	Spike/Matrix Spike Duplicate (MS/MSD)	VES	NO	NΔ
	Was MS/MSD accuracy criteria met?			
a) h)	Was MS/MSD accuracy chiena met?			
Com not c	ments: <u>1,1'-Biphenyl, 2,4,6-Trichlorophenol and 2,4-Dichlorophenol recovery low for MS and MS unalified based on MS/MSD data alone.</u>	SD in ba	atch 4	<u>23974. Da</u>
_abora	atory Control Sample (LCS)	YES	NO	NA
a)	LCS analyzed at the appropriate frequency and met appropriate standards?	$\boxtimes$		
Com	ments: None			
Surrog	ate (System Monitoring) Compounds	YES	NO	NA
a)	Surrogate compounds analyzed at the appropriate frequency and met appropriate standards?		$\boxtimes$	
Com	ments: Surrogate, 2,4,6-tribromophenol recovered low in sample GM-58A-0216. Qualification no	ot requi	red.	
Duplic	ates	YES	NO	NA
a)	Were field duplicates collected?		$\boxtimes$	
b)	Was field duplicate precision criteria met?			$\boxtimes$

Additional Comments: None





# **Qualifications:**

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



# <u>TestAmerica</u>

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: 680-122085-1 TestAmerica Sample Delivery Group: KOM031 Client Project/Site: 1Q16 Route 3 Drum Site O&M

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

Attn: Mr. Jerry Rinaldi

Michele RKusz

Authorized for release by: 3/16/2016 5:28:03 PM

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



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

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

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

Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M

2

# Qualifiers

GC/MS Se	mi VOA	
Qualifier	Qualifier Description	
F1	MS and/or MSD Recovery is outside acceptance limits.	
U	Indicates the analyte was analyzed for but not detected.	
х	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 C	hemistry	
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)



# Sample Summary

Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M

Lab Sample ID	Client Sample ID	Matrix	Collected Rec	eived
680-122085-1	GM-58A-0216	Water	02/18/16 13:58 02/19/	16 09:20
680-122085-2	GM-58A- F(0.2)-0216	Water	02/18/16 13:58 02/19/	16 09:20



Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M TestAmerica Job ID: 680-122085-1 SDG: KOM031

### Job ID: 680-122085-1

#### Laboratory: TestAmerica Savannah

Narrative

# CASE NARRATIVE

# Client: Solutia Inc.

# Project: 1Q16 Route 3 Drum Site O&M

# Report Number: 680-122085-1

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 2/19/2016 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.8° C.

#### SEMIVOLATILE ORGANIC COMPOUNDS (AQUEOUS)

Sample GM-58A-0216 (680-122085-1) was analyzed for Semivolatile Organic Compounds (Aqueous) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 02/23/2016 and analyzed on 03/04/2016.

The following sample contained an allowable number of surrogate compounds outside limits: GM-58A-0216 (680-122085-1). These results have been reported and gualified.

1,1'-Biphenyl, 2,4,6-Trichlorophenol and 2,4-Dichlorophenol exceeded the recovery criteria low for the MS and MSD of sample GM-58A-0216MS (680-122085-1) in batch 680-423974.

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

#### DISSOLVED GASES

Sample GM-58A-0216 (680-122085-1) was analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 03/03/2016.

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

#### METALS (ICP)

Sample GM-58A- F(0.2)-0216 (680-122085-2) was analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/22/2016 and analyzed on 02/24/2016.

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

#### METALS (ICP)

Sample GM-58A-0216 (680-122085-1) was analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/22/2016 and analyzed on 02/24/2016.

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

#### ALKALINITY

Sample GM-58A-0216 (680-122085-1) was analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 02/22/2016.



# Job ID: 680-122085-1 (Continued)

### Laboratory: TestAmerica Savannah (Continued)

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

#### CHLORIDE

Sample GM-58A-0216 (680-122085-1) was analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 02/25/2016.

Sample GM-58A-0216 (680-122085-1)[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

Sample GM-58A-0216 (680-122085-1) was analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 02/19/2016.

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

#### SULFATE

Sample GM-58A-0216 (680-122085-1) was analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 02/26/2016.

Sample GM-58A-0216 (680-122085-1)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

#### TOTAL ORGANIC CARBON

Sample GM-58A-0216 (680-122085-1) was analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 03/04/2016.

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

### DISSOLVED ORGANIC CARBON (DOC)

Sample GM-58A- F(0.2)-0216 (680-122085-2) was analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 03/07/2016.

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



TestAmerica Job ID: 680-122085-1 SDG: KOM031

## Client Sample ID: GM-58A-0216 Date Collected: 02/18/16 13:58 Date Received: 02/19/16 09:20

# Lab Sample ID: 680-122085-1 Matrix: Water

Method: 8270D - Semivolatile Analyte	e Organic Co Result	mpounds Qualifier	(GC/MS) RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U F1	10		ug/L		02/23/16 16:28	03/04/16 21:37	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 21:37	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 21:37	1
2-chloronitrobenzene /	20	U	20		ug/L		02/23/16 16:28	03/04/16 21:37	1
3,4-Dichloronitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 21:37	1
2,4-Dichlorophenol	10	UF1	10		ug/L		02/23/16 16:28	03/04/16 21:37	1
Nitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 21:37	1
2-Nitrobiphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 21:37	1
3-Nitrobiphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 21:37	1
4-Nitrobiphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 21:37	1
Pentachlorophenol	50	U	50		ug/L		02/23/16 16:28	03/04/16 21:37	1
2,4,6-Trichlorophenol	10	U F1	10		ug/L		02/23/16 16:28	03/04/16 21:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	33		32-113				02/23/16 16:28	03/04/16 21:37	1
2-Fluorophenol	35		26 - 109				02/23/16 16:28	03/04/16 21:37	1
Nitrobenzene-d5	40		32-118				02/23/16 16:28	03/04/16 21:37	1
Phenol-d5	40		27-110				02/23/16 16:28	03/04/16 21:37	1
Terphenyl-d14	32		10-126				02/23/16 16:28	03/04/16 21:37	1
2,4,6-Tribromophenol	34	X	39 - 124				02/23/16 16:28	03/04/16 21:37	1
Method: RSK-175 - Dissolved Analyte	d Gases (GC Result	) Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	1.2		1.0		ug/L			03/03/16 12:19	1
Ethane	1.0	U	1.0		ug/L			03/03/16 12:19	1
Ethylene	1.0	U	1.0		ug/L			03/03/16 12:19	1
Method: 6010C - Metals (ICP)	- Total Reco	overable							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.12		0.050		mg/L		02/22/16 13:49	02/24/16 02:23	1
Manganese	1.0		0.010		mg/L		02/22/16 13:49	02/24/16 02:23	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	62	0	2.0		mg/L			02/25/16 17:37	2
Nitrate as N	0.75	~	0.050		mg/L			02/19/16 17:54	1
Sulfate	220	D	50		mg/L			02/26/16 09:25	10
Total Organic Carbon	3.1		1.0		mg/L			03/04/16 16:10	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	420		5.0		mg/L			02/22/16 14:53	1
Carbon Dioxide, Free	31		5.0		mg/L			02/22/16 14:53	1

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# **Client Sample Results**

Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M TestAmerica Job ID: 680-122085-1 SDG: KOM031

Client Sample ID: GM-58A- F(0.2)-0216 Date Collected: 02/18/16 13:58 Date Received: 02/19/16 09:20						La	ab Sample	ID: 680-122 Matrix:	Water
Method: 6010C - Metals (ICP) - I Analyte	Dissolved Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	2.6	(	0.050		mg/L		02/22/16 13:49	02/24/16 02:28	1
Manganese, Dissolved	1.0		0.010		mg/L		02/22/16 13:49	02/24/16 02:28	1
General Chemistry - Dissolved									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.9		1.0		mg/L			03/07/16 18:11	1

4 5 7 8 9 10



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

Lab Sample ID: MB 680-422 Matrix: Water	2451/21-A						Client Samp	le ID: Method	Blank
Analysis Batch: 423974							2	Pren Batch	422451
Analysis Baton: 420014	MB	MB						Top Batom	122 101
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
2-chloronitrobenzene /	20	U	20		ug/L		02/23/16 16:28	03/04/16 20:48	1
4-chloronitrobenzene									
3,4-Dichloronitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
2,4-Dichlorophenol	10	υ	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
Nitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
2-Nitrobiphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
3-Nitrobiphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
4-Nitrobiphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
Pentachlorophenol	50	U	50		ug/L		02/23/16 16:28	03/04/16 20:48	1
2,4,6-Trichlorophenol	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	72		32-113				02/23/16 16:28	03/04/16 20:48	1
2-Fluorophenol	59		26-109				02/23/16 16:28	03/04/16 20:48	1
Nitrobenzene-d5	75		32-118				02/23/16 16:28	03/04/16 20:48	1
Phenol-d5	70		27-110				02/23/16 16:28	03/04/16 20:48	1
Terphenyl-d14	92		10-126				02/23/16 16:28	03/04/16 20:48	1
2.4.6-Tribromophenol	61		39-124				02/23/16 16:28	03/04/16 20:48	1

#### Lab Sample ID: LCS 680-422451/22-A Matrix: Water Analysis Batch: 422040

# **Client Sample ID: Lab Control Sample**

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA Pron Batch: 422451

Analysis Batch: 422949	Spike	LCS	LCS				РГер Басп: 422451 %Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1'-Biphenyl	100	69.2		ug/L		69	45 - 130
2,4-Dichlorophenol	100	70.0		ug/L		70	44 - 130
Nitrobenzene	100	64.5		ug/L		65	43 - 130
Pentachlorophenol	200	161		ug/L		80	33 - 130
2,4,6-Trichlorophenol	100	74.8		ug/L		75	47 - 130

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
2-Fluorobiphenyl	66		32-113
2-Fluorophenol	51		26 - 109
Nitrobenzene-d5	62		32-118
Phenol-d5	55		27-110
Terphenyl-d14	82		10-126
2,4,6-Tribromophenol	77		39 - 124

#### Lab Sample ID: LCS 680-422451/28-A Matrix: Water

## Analysis Batch: 423974

Analysis Batch: 423974							Prep Batch: 422451
-	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
1-chloro-2,4-dinitrobenzene	100	72.2		ug/L		72	51 - 130
1-Chloro-3-nitrobenzene	100	71.0		ug/L		71	31 - 130

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Prep Type: Total/NA

Client Sample ID: GM-58A-0216

Prep Type: Total/NA

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

Lab Sample ID: LCS 680-422451/28-A Matrix: Water				Clie	nt Sa	mple ID	: Lab Control Sample Prep Type: Total/NA
Analysis Batch: 423974	Spike	LCS	LCS				Prep Batch: 422451 %Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
2-chloronitrobenzene /	200	142	-	ug/L		71	34 - 130
4-chloronitrobenzene 3,4-Dichloronitrobenzene	100	77.3		ug/L		77	34 - 130
2-Nitrobiphenyl	100	76.3		ug/L		76	39 - 130
3-Nitrobiphenyl	100	86.0		ug/L		86	40 - 130
4-Nitrobiphenyl	100	87.5		ug/L		87	39 - 130
LCS LCS							

	200	200	
Surrogate	%Recovery	Qualifier	Limits
2-Fluorobiphenyl	56		32 - 113
2-Fluorophenol	59		26 - 109
Nitrobenzene-d5	74		32-118
Phenol-d5	65		27-110
Terphenyl-d14	89		10-126
2.4.6-Tribromophenol	51		39 - 124

# Lab Sample ID: 680-122085-1 MS Matrix: Water

Analysis Batch: 423974									Prep Batch: 422451
	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1-chloro-2,4-dinitrobenzene	10	U	99.8	60.2		ug/L		60	51 - 130
1-Chloro-3-nitrobenzene	10	U	99.8	42.5		ug/L		43	31 - 130
2-chloronitrobenzene /	20	U	200	95.1		ug/L		48	34 - 130
4-chloronitrobenzene									
3,4-Dichloronitrobenzene	10	U	99.8	48.7		ug/L		49	34 - 130
2-Nitrobiphenyl	10	U	99.8	65.5		ug/L		66	39 - 130
3-Nitrobiphenyl	10	U	99.8	69.6		ug/L		70	40 - 130
4-Nitrobiphenyl	10	U	99.8	68.8		ug/L		69	39 - 130

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
2-Fluorobiphenyl	37		32 - 113
2-Fluorophenol	36		26 - 109
Nitrobenzene-d5	48		32-118
Phenol-d5	44		27 - 110
Terphenyl-d14	40		10-126
2,4,6-Tribromophenol	45		39 - 124

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# Lab Sample ID: 680-122085-1 MS Matrix: Water

Analysis Batch: 423974									Prep Batch: 422451
1	Sample	Sample	Spike	MS	MS			1.0	%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1'-Biphenyl	10	UF1	99.6	26.7	F1	ug/L		27	45 - 130
2,4-Dichlorophenol	10	UF1	99.6	40.8	F1	ug/L		41	44 - 130
Nitrobenzene	10	U	99.6	47.0		ug/L		47	43 - 130
Pentachlorophenol	50	U	199	98.7		ug/L		47	33 - 130
2,4,6-Trichlorophenol	10	UF1	99.6	46.2	F1	ug/L		46	47 - 130

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Client Sample ID: GM-58A-0216

Prep Type: Total/NA

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

## Lab Sample ID: 680-122085-1 MS Matrix: Water Analysis Batch: 423974

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
2-Fluorobiphenyl	36		32-113
2-Fluorophenol	35		26 - 109
Nitrobenzene-d5	41		32-118
Phenol-d5	43		27 - 110
Terphenyl-d14	47		10-126
2,4,6-Tribromophenol	43		39 - 124

# Lab Sample ID: 680-122085-1 MSD Matrix: Water

Analysis Batch: 423974									Prep Ba	tch: 42	22451
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1'-Biphenyl	10	U F1	101	40.6	F1	ug/L		40	45 - 130	41	50
2,4-Dichlorophenol	10	U F1	101	40.4	F1	ug/L		40	44 - 130	1	50
Nitrobenzene	10	U	101	50.3		ug/L		50	43 - 130	7	50
Pentachlorophenol	50	U	202	92.6		ug/L		43	33 - 130	6	50
2,4,6-Trichlorophenol	10	U F1	101	42.2	F1	ug/L		42	47 - 130	9	50

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
2-Fluorobiphenyl	41		32 - 113
2-Fluorophenol	35		26 - 109
Nitrobenzene-d5	47		32 - 118
Phenol-d5	42		27-110
Terphenyl-d14	32		10-126
2.4.6-Tribromophenol	43		39 - 124

# Lab Sample ID: 680-122085-1 MSD Matrix: Water

Analysis Batch: 424633									Prep Ba	tch: 42	22451
-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1-chloro-2,4-dinitrobenzene	10	U	99.9	60.0		ug/L		60	51 - 130	0	50
1-Chloro-3-nitrobenzene	10	U	99.9	42.7		ug/L		43	31 - 130	0	50
2-chloronitrobenzene /	20	U	200	93.7		ug/L		47	34 - 130	2	50
4-chloronitrobenzene 3,4-Dichloronitrobenzene	10	U	99.9	48.2		ug/L		48	34 - 130	1	50
2-Nitrobiphenyl	10	U	99.9	62.6		ug/L		63	39 - 130	4	50
3-Nitrobiphenyl	10	U	99.9	65.7		ug/L		66	40 - 130	6	50
4-Nitrobiphenyl	10	U	99.9	65.4		ug/L		65	39 - 130	5	50

	WSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
2-Fluorobiphenyl	40		32-113
2-Fluorophenol	30		26 - 109
Nitrobenzene-d5	47		32-118
Phenol-d5	39		27-110
Terphenyl-d14	38		10-126
2,4,6-Tribromophenol	40		39 - 124

## Client Sample ID: GM-58A-0216 Prep Type: Total/NA Prep Batch: 422451

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Client Sample ID: GM-5	8A-0216
Prep Type: 7	Total/NA
Prep Batch	: 422451
% Boo	DDD

Client	Sample	ID:	GM-	58A-0	216
	Pre	p T	ype:	Total	/NA



Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 400-295942/2									c	lie	ent Sam	ple ID: Me	thod	Blank
Matrix: Water												Prep Type	e: To	tal/NA
Analysis Batch: 295942	222	1000												
65 x 10 505 0	MB	мв												
Analyte	Result	Qualifier		RL		MDL	Unit		D	Ρ	repared	Analyze	d	Dil Fac
Methane	1.0	U		1.0			ug/L					03/03/16 0	9:37	1
Ethane	1.0	U		1.0			ug/L					03/03/16 0	9:37	1
Ethylene	1.0	U		1.0			ug/L					03/03/16 0	9:37	1
Lab Sample ID: LCS 400-295942/3								CI	lient S	Sar	mple ID	: Lab Cont	rol Sa	ample
Matrix: Water											15.5	Prep Type	e: To	tal/NA
Analysis Batch: 295942														
			Spike		LCS	LCS						%Rec.		
Analyte			Added		Result	Qua	lifier	Unit		D	%Rec	Limits		
Methane	- 47		169		166	-		ug/L		-	98	85-115		
Ethane			321		317			ug/L			99	85 - 115		
Ethylene			299		285			ug/L			95	85 - 115		
Lab Sample ID: LCSD 400-295942/4							c	lient	Same	le	ID: Lat	Control S	ampl	e Dup
Matrix: Water	572						1965					Pren Tyn	e' To	tal/NA
Analysis Batch: 295942												Thep Type		
Analysis Batch. 200042			Spike		LCSD	LCS	D					%Rec.		RPD
Analyte			Added		Result	Qua	lifier	Unit		D	%Rec	Limits	RPD	Limit
Methane			169	-	163			ug/l		-	97	85.115	1	20
Ethane			321		315			ug/L			98	85 115	0	20
Ethylene			299		284			ug/L			95	85 115	1	20
			200		204			29/1				001110	Ċ	20
Method: 6010C - Metals (ICP)														
Lab Sample ID: MB 680-422364/1-A									c	lie	ent Sam	nole ID: Me	thod	Blank

### Client Sample ID: Method Blank Prep Type: Total Recoverable Prep Batch: 422364

**Client Sample ID: Lab Control Sample** 

Prep Type: Total Recoverable

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		02/22/16 13:49	02/24/16 00:13	1
Iron, Dissolved	0.050	U	0.050		mg/L		02/22/16 13:49	02/24/16 00:13	1
Manganese	0.010	U	0.010		mg/L		02/22/16 13:49	02/24/16 00:13	1
Manganese, Dissolved	0.010	U	0.010		ma/L		02/22/16 13:49	02/24/16 00:13	1

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#### Lab Sample ID: LCS 680-422364/2-A Matrix: Water Analysis Batch: 422624

Matrix: Water

Analysis Batch: 422624

Analysis Batch: 422624	Spike	LCS	LCS				WRec
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Iron	5.00	5.12		mg/L		102	80 - 120
Iron, Dissolved	5.00	5.12		mg/L		102	80 - 120
Manganese	0.500	0.522		mg/L		104	80 - 120
Manganese, Dissolved	0.500	0.522		mg/L		104	80 - 120

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# Method: 310.1 - Alkalinity

							Clie	ent Sam	ple ID: Me	ethod	Blank
Matrix: Water									Ргер Тур	e: To	tal/NA
Analysis Batch: 422474											
	MB	MB									
Analyte	Result	Qualifier		RL	RL Unit	D	Ρ	repared	Analyz	ed	Dil Fac
Alkalinity	5.0	U		5.0	mg/L				02/22/16 1	14:04	
Carbon Dioxide, Free	5.0	U		5.0	mg/L				02/22/16 1	4:04	
Lab Sample ID: LCS 680-422474/8	3					Clien	t Sar	mple ID	: Lab Con	trol S	ample
Matrix: Water									Prep Typ	e: To	tal/NA
Analysis Batch: 422474											
			Spike	LCS	LCS				%Rec.		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Alkalinity			250	263		mg/L		105	80 - 120		
Lab Sample ID: LCSD 680-422474	/29				c	lient San	nple	ID: Lab	o Control S	Samp	e Dur
Matrix: Water							Cr#05553		Prep Typ	e: To	tal/NA
Analysis Batch: 422474											
			Spike	LCSD	LCSD				%Rec.		RPD
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limi
Alkalinity			250	268		mg/L		107	80 - 120	2	30
lethod: 325.2 - Chloride						945 - 11 - 21 - 21 - 21 - 21 - 21 - 21 - 2					
Lab Sample ID: MB 680-423112/4	7						Clie	ent Sam	ple ID: Me	ethod	Blank
Lab Sample ID: MB 680-423112/4 Matrix: Water	7						Clie	ent Sam	ple ID: Me Prep Typ	ethod e: To	Blani tal/NA
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112	7						Clie	ent Sam	nple ID: Me Prep Typ	ethod be: To	Blani tal/NA
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112	7 Me	8 MB					Clie	ent Sam	nple ID: Me Prep Typ	ethod be: To	Blani tal/NA
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112 <sup>Analyte</sup>	7 ME Resul	8 MB t Qualifier		RL	MDL Unit	D	Clie	ent Sarr repared	nple ID: Me Prep Typ Analyz	ethod be: To ed	Blani tal/NA Dil Fa
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112 Analyte Chloride	7 ME Resul 1.0	B MB t Qualifier		RL 1.0	MDL Unit mg/L	D	Clie	ent Sarr repared	Prep Typ Analyz 02/26/16	ethod be: To ed 12:01	Blanl tal/NA Dil Fa
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112 Analyte Chloride Lab Sample ID: LCS 680-423112/4 Matrix: Water	7 Me Resul 1.( 4	B MB Qualifier U		RL 1.0	MDL Unit mg/L	D	Clie P t Sa	repared mple ID	Analyz O2/26/16 1 D: Lab Con Prep Typ	ethod be: To ed 12:01 trol S be: To	Blanl tal/N/ Dil Fac ample tal/N/
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112 Analyte Chloride Lab Sample ID: LCS 680-423112/4 Matrix: Water Analysis Batch: 423112	7 ME Resul 1.( 4	B MB Qualifier U		RL 1.0	MDL Unit mg/L	D	Clie P t Sa	repared mple ID	Analyz O2/26/16 D: Lab Con Prep Typ	ethod be: To ed 12:01 trol S be: To	Blanl tal/NA Dil Fac ample tal/NA
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112 Analyte Chloride Lab Sample ID: LCS 680-423112/4 Matrix: Water Analysis Batch: 423112	7 Resul 1.0	B MB Qualifier U	Spike	RL 1.0 LCS	MDL Unit mg/L	Clien	Clie P	repared	Analyz O2/26/16 1 02/26/16 1 0: Lab Con Prep Typ %Rec.	ethod be: To ed 12:01 trol S be: To	Blank tal/NA Dil Fac ample tal/NA
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112 Chloride Lab Sample ID: LCS 680-423112/4 Matrix: Water Analysis Batch: 423112	7 Resul 1.0	B MB Qualifier U	Spike Added	RL 1.0 LCS Result	MDL Unit mg/L LCS Qualifier	Clien Unit	Clie P t Sar	repared mple ID %Rec	Analyz O2/26/16 1 02/26/16 1 0: Lab Con Prep Typ %Rec. Limits	ethod ee: To 12:01 trol S be: To	Blanl tal/N/ Dil Fac ample tal/N/
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112 Analyte Chloride Lab Sample ID: LCS 680-423112/4 Matrix: Water Analysis Batch: 423112 Analyte Chloride	7 Resul 1.0	B MB Qualifier	Spike Added 25.0	RL 1.0 LCS Result 25.9	MDL Unit mg/L LCS Qualifier	D Clien Unit mg/L	Clie P t Sar	repared mple ID %Rec 104	Analyz O2/26/16 D: Lab Con Prep Typ %Rec. Limits 85 - 115	ethod be: To ed 12:01 trol S be: To	Blani tal/N/ Dil Fa ample tal/N/
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112 Chloride Lab Sample ID: LCS 680-423112/4 Matrix: Water Analysis Batch: 423112 Analyte Chloride Lab Sample ID: 680-122085-1 DU Matrix: Water	7 Resul 1.0	B MB Qualifier	Spike Added 25.0	RL 1.0 LCS Result 25.9	MDL Unit mg/L LCS Qualifier	Clien Unit mg/L	Clie P t San Cli	repared mple ID <u>%Rec</u> 104 ent Sar	Analyz O2/26/16 1 02/26/16 1 0: Lab Con Prep Typ %Rec. Limits 85 - 115 mple ID: Gi Prep Typ	ethod be: To ed 12:01 trol S be: To M-58/ be: To	Blani tal/NA Dil Fa ample tal/NA
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112 Analyte Chloride Lab Sample ID: LCS 680-423112/4 Matrix: Water Analysis Batch: 423112 Chloride Lab Sample ID: 680-122085-1 DU Matrix: Water Analysis Batch: 423112	7 Resul 1.0	B MB Qualifier	Spike Added 25.0	RL 1.0 LCS Result 25.9	MDL Unit mg/L LCS Qualifier	Clien Unit mg/L	Clie P t San Cli	repared mple ID <u>%Rec</u> 104 ent Sar	Analyz O2/26/16 1 02/26/16 1 0: Lab Con Prep Typ %Rec. Limits 85 - 115 mple ID: Gi Prep Typ	ethod be: To ed 12:01 trol S be: To M-58/ be: To	Blani tal/NA Dil Fa ample tal/NA
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112 Analyte Chloride Lab Sample ID: LCS 680-423112/4 Matrix: Water Analysis Batch: 423112 Chloride Lab Sample ID: 680-122085-1 DU Matrix: Water Analysis Batch: 423112	7 Resul 1.0 4 mple Sa	MB Qualifier	Spike Added 25.0	RL 1.0 LCS Result 25.9	MDL Unit mg/L LCS Qualifier	Clien Unit mg/L	Clie P t San Cli	repared mple ID <u>%Rec</u> 104 ent Sar	Analyz Analyz 02/26/16 1 0: Lab Con Prep Typ %Rec. Limits 85 - 115 mple ID: Gi Prep Typ	ethod be: To ed 12:01 trol S be: To M-58/ be: To	Blani tal/NA Dil Fa ample tal/NA A-0210 tal/NA
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112 Analyte Chloride Lab Sample ID: LCS 680-423112/4 Matrix: Water Analysis Batch: 423112 Chloride Lab Sample ID: 680-122085-1 DU Matrix: Water Analysis Batch: 423112 Sa	7 Result 1.0 4 mple Sa	MB Qualifier	Spike Added 25.0	RL 1.0 LCS Result 25.9 DU Result	MDL Unit mg/L LCS Qualifier DU	D Clien Unit mg/L	Clie P t San Cli	repared mple ID <u>%Rec</u> 104 ent Sar	nple ID: Me Prep Typ 02/26/16 1 0: Lab Con Prep Typ %Rec. Limits 85 - 115 nple ID: Gi Prep Typ	ethod be: To ed 12:01 trol S be: To M-58/ be: To RPD	Blani tal/N/ Dil Fa ample tal/N/ A-0210 tal/N/ RPI Lim
Lab Sample ID: MB 680-423112/4 Matrix: Water Analysis Batch: 423112 Analyte Chloride Lab Sample ID: LCS 680-423112/4 Matrix: Water Analysis Batch: 423112 Analyte Chloride Lab Sample ID: 680-122085-1 DU Matrix: Water Analysis Batch: 423112 Sa Analyte Chloride	7 Result 1.0 4 mple Sa esult Qu 62	MB Qualifier U	Spike Added 25.0	RL 1.0 LCS Result 25.9 DU Result 61.9	MDL Unit mg/L LCS Qualifier	Clien Unit mg/L Unit mg/L	Clie P t Sau Cli	repared mple ID %Rec 104 ent Sar	Analyz O2/26/16 1 0: Lab Con Prep Typ %Rec. Limits 85-115 mple ID: Gi Prep Typ	ethod be: To ed 12:01 trol S be: To M-58/ De: To .3	Blanl tal/N/ Dil Fa ample tal/N/ A-0210 tal/N/ RPI Lim 3

Matrix: Water	1/30					32	Chefit Sam	Prep Type: To	tal/NA
Analysis Batch: 422167									
i e contra transferia e la musica e la musica de la serie de la menta de la contra de la contra de la contra de	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			02/19/16 15:45	1

4 5 6 7 8 9

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

Lab Sample ID: LCS 680-422167/39 Matrix: Water				Clie	nt Sai	mple 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	0.539		mg/L		108	75 - 125
Nitrate Nitrite as N	1.00	1.05		mg/L		105	90 - 110
Nitrite as N	0.500	0.511		mg/L		102	90 - 110
Method: 375.4 - Sulfate							

Lab Sample ID: MB 680-423	3114/2									С	lie	ent Sam	ple ID:	Method	l Blank
Matrix: Water		5											Prep T	ype: To	otal/NA
Analysis Batch: 423114															
		MB	MB												
Analyte	Re	sult	Qualifier		RL		MDL	Unit		D	P	repared	Ana	lyzed	Dil Fac
Sulfate		5.0	U		5.0			mg/L					02/25/1	6 17:00	1
Lab Sample ID: LCS 680-42 Matrix: Water	3114/1								Clie	ent S	ar	nple ID	: Lab Co Prep T	ontrol s ype: To	Sample otal/NA
Analysis Batch: 423114				Spike		1.05	1.09						%Pac		
Analyte				Addod		Recult	0.0	lifior	Unit		п	%Rec	l imite		
Sulfate				20.0		21.6	Qua	inner	ma/l		-	109	75 125		
Sunate				20.0		21.0			mg/L			100	75-125		
Lab Sample ID: LCSD 680-4 Matrix: Water	423114/5							c	lient S	amp	le	ID: Lab	Contro Prep T	l Samp ype: T	ole Dup otal/NA
Analysis Batch: 423114				Sniko		1000	1.05	n.					%Pac		PPD
Analyte				Addod		Recult	000	lifior	Unit		n	% Poc	l imite	PDI	
Sulfate		-		20.0		20.9	Que		mg/L		-	104	75 - 125		3 30
Lab Sample ID: 680-122085 Matrix: Water Analysis Batch: 423114	-1 DU						~			c	Clie	ent San	nple ID: Prep T	GM-58 ype: T	A-0216 otal/NA
A	Sample	San	npie			DU	00	1101	11		_				RPD
Sulfate	220	Qua				213	Qua	untier	ma/l		-				
	220					210			ing/c						1 00
Method: 415.1 - DOC	araini a											No cuttores			
Lab Sample ID: MB 160-239 Matrix: Water	9463/4									С	lie	ent Sam	nple ID: Prep Ty	Metho pe: Dis	d Blank solved
Analysis Batch: 239463			MD												
Analysis	B	IVIB	MB		ы			11		D			A	huned	Dil Foo
Dissolved Organic Carbon		1.0	U		1.0	) <u> </u>	MDL	ma/L		<u> </u>	P	repared	03/07/	16 17:18	Dil Fac
Lab Sample ID: LCS 160-23	89463/5								Cli	ent S	Sai	mple ID	: Lab C	ontrol	Sample
Matrix: Water													Prep Ty	pe: Dis	solved
Analysis Batch: 239463				Celler		1.00	1.00						9/ Dee		
Analyte				Spike		Basula	0	lifior	Unit		n	% Pac	/orcec.		
Disselved Organic Carbon				Added		Aesult	QUA	anner	ma/l		-	/orcec	Cinits		
Dissolved Organic Carbon				10.0		9.76			mg/L			98	90-110		

# **QC Sample Results**

TestAmerica Job ID: 680-122085-1 SDG: KOM031

Method: 415.1 - TOC

Lab Sample ID: MB 160-23941 Matrix: Water	10/4									Cli	ent San	nple ID: Method Prep Type: To	Blank tal/NA
Analysis Batch: 239410		MB	MB										
Analyte	Re	sult	Qualifier		RL		MDL	Unit		DP	repared	Analyzed	Dil Fac
Total Organic Carbon		1.0	U		1.0			mg/L				03/04/16 15:36	1
Lab Sample ID: LCS 160-2394 Matrix: Water	10/5								Clie	ent Sa	mple IC	): Lab Control S Prep Type: To	ample stal/NA
Analysis Batch. 235410				Spike		LCS	LCS					%Rec.	
Analyte				Added		Result	Qual	ifier	Unit	D	%Rec	Limits	
Total Organic Carbon				10.0		9.65			mg/L		96	90 - 110	
Lab Sample ID: 680-122085-1 Matrix: Water Analysis Batch: 239410	MS									Cli	ient Sai	mple ID: GM-58 Prep Type: To	A-0216 otal/NA
	Sample	Sam	ple	Spike		MS	MS					%Rec.	
Analyte	Result	Qua	lifier	Added		Result	Qual	lifier	Unit	D	%Rec	Limits	
Total Organic Carbon	3.1			5.00		9.13			mg/L		120	76 - 120	
Lab Sample ID: 680-122085-1 Matrix: Water Analysis Batch: 239410	DU									CI	ient Sa	mple ID: GM-58 Prep Type: To	A-0216 otal/NA
	Sample	Sam	ple			DU	DU						RPD
Analyte	Result	Qua	lifier			Result	Qual	lifier	Unit	D		RPD	Limit
Total Organic Carbon	3.1					3.33	) 		mg/L				20

TestAmerica Savannah AMD 3 21 10

# **QC** Association Summary

Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M TestAmerica Job ID: 680-122085-1 SDG: KOM031

GC/MS Semi VOA

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122085-1	GM-58A-0216	Total/NA	Water	3520C	
680-122085-1 MS	GM-58A-0216	Total/NA	Water	3520C	
680-122085-1 MS	GM-58A-0216	Total/NA	Water	3520C	
680-122085-1 MSD	GM-58A-0216	Total/NA	Water	3520C	
680-122085-1 MSD	GM-58A-0216	Total/NA	Water	3520C	
LCS 680-422451/22-A	Lab Control Sample	Total/NA	Water	3520C	
LCS 680-422451/28-A	Lab Control Sample	Total/NA	Water	3520C	
MB 680-422451/21-A	Method Blank	Total/NA	Water	3520C	
Analysis Batch: 4229	949				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-422451/22-A	Lab Control Sample	Total/NA	Water	8270D	422451
Analysis Batch: 4239	974				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122085-1	GM-58A-0216	Total/NA	Water	8270D	422451
680-122085-1 MS	GM-58A-0216	Total/NA	Water	8270D	422451
680-122085-1 MS	GM-58A-0216	Total/NA	Water	8270D	422451
	GM-58A-0216	Total/NA	Water	8270D	422451
680-122085-1 MSD				00705	400464
680-122085-1 MSD LCS 680-422451/28-A	Lab Control Sample	Total/NA	Water	8270D	42243
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A	Lab Control Sample Method Blank	Total/NA Total/NA	Water Water	8270D 8270D	422451
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246	Lab Control Sample Method Blank 533	Total/NA Total/NA	Water Water	8270D 8270D	422451
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID	Lab Control Sample Method Blank 533 Client Sample ID	Total/NA Total/NA <b>Prep Type</b>	Water Water Matrix	8270D 8270D Method	422451 422451 Prep Batch
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD	Lab Control Sample Method Blank 633 Client Sample ID GM-58A-0216	Total/NA Total/NA Prep Type Total/NA	Water Water Matrix Water	8270D 8270D Method 8270D	422451 422451 Prep Batch 422451
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD GC VOA	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216	Total/NA Total/NA Prep Type Total/NA	Water Water Matrix Water	8270D 8270D Method 8270D	422451 422451 
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD GC VOA Analysis Batch: 2955	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216 942	Total/NA Total/NA <b>Prep Type</b> Total/NA	Water Water Matrix Water	8270D 8270D Method 8270D	422451 422451 Prep Batch 422451
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD GC VOA Analysis Batch: 2955 Lab Sample ID	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216 942 Client Sample ID	Total/NA Total/NA Prep Type Total/NA Prep Type	Water Water Matrix Water Matrix	8270D 8270D Method 8270D	Prep Batch 422451 422451 422451 422451
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD GC VOA Analysis Batch: 2959 Lab Sample ID 680-122085-1	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216 942 Client Sample ID GM-58A-0216	Total/NA Total/NA Prep Type Total/NA Prep Type Total/NA	Water Water Matrix Water Matrix Water	8270D 8270D Method 8270D Method RSK-175	Prep Batch
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD GC VOA Analysis Batch: 2959 Lab Sample ID 680-122085-1 LCS 400-295942/3	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216 942 Client Sample ID GM-58A-0216 Lab Control Sample	Total/NA Total/NA Prep Type Total/NA Prep Type Total/NA Total/NA	Water Water Matrix Water Matrix Water Water Water	8270D 8270D Method 8270D 8270D Method RSK-175 RSK-175	Prep Batch
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD GC VOA Analysis Batch: 2959 Lab Sample ID 680-122085-1 LCS 400-295942/3 LCSD 400-295942/4	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216 942 Client Sample ID GM-58A-0216 Lab Control Sample Lab Control Sample Dup	Total/NA Total/NA Prep Type Total/NA Prep Type Total/NA Total/NA Total/NA	Water Water Matrix Water Matrix Water Water Water Water	8270D 8270D Method 8270D 8270D Method RSK-175 RSK-175 RSK-175	Prep Batch
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD GC VOA Analysis Batch: 2959 Lab Sample ID 680-122085-1 LCS 400-295942/3 LCSD 400-295942/4 MB 400-295942/2	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216 942 Client Sample ID GM-58A-0216 Lab Control Sample Lab Control Sample Dup Method Blank	Total/NA Total/NA Prep Type Total/NA Prep Type Total/NA Total/NA Total/NA Total/NA	Water Water Matrix Water Water Water Water Water Water Water	8270D 8270D	Prep Batch 422451 422451 422451 422451
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD GC VOA Analysis Batch: 2959 Lab Sample ID 680-122085-1 LCS 400-295942/3 LCSD 400-295942/4 MB 400-295942/2 Metals	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216 2942 Client Sample ID GM-58A-0216 Lab Control Sample Lab Control Sample Dup Method Blank	Total/NA Total/NA Prep Type Total/NA Prep Type Total/NA Total/NA Total/NA Total/NA	Water Water Matrix Water Water Water Water Water Water Water	8270D 8270D	Prep Batch
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD GC VOA Analysis Batch: 2959 Lab Sample ID 680-122085-1 LCS 400-295942/3 LCSD 400-295942/4 MB 400-295942/2 Metals Prep Batch: 422364	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216 Client Sample ID GM-58A-0216 Lab Control Sample Lab Control Sample Lab Control Sample Dup Method Blank	Total/NA Total/NA Prep Type Total/NA Prep Type Total/NA Total/NA Total/NA Total/NA	Water Water Matrix Water Water Water Water Water Water Water	8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D 8270D	Prep Batch
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/28-A <b>Analysis Batch: 4246</b> <b>Lab Sample ID</b> 680-122085-1 MSD <b>GC VOA</b> <b>Analysis Batch: 2959</b> <b>Lab Sample ID</b> 680-122085-1 LCS 400-295942/3 LCSD 400-295942/3 LCSD 400-295942/2 <b>Metals</b> <b>Prep Batch: 422364</b> <b>Lab Sample ID</b>	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216 2942 Client Sample ID GM-58A-0216 Lab Control Sample Lab Control Sample Dup Method Blank Client Sample ID	Total/NA Total/NA Prep Type Total/NA Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA	Water Water Matrix Water Water Water Water Water Water Water	8270D 82705 82705	Prep Batch
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/28-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD GC VOA Analysis Batch: 2959 Lab Sample ID 680-122085-1 LCS 400-295942/3 LCSD 400-295942/4 MB 400-295942/2 Metals Prep Batch: 422364 Lab Sample ID 680-122085-1	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216 2942 Client Sample ID GM-58A-0216 Lab Control Sample Lab Control Sample Dup Method Blank Client Sample ID GM-58A-0216	Total/NA Total/NA Prep Type Total/NA Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Total/NA	Water Water Matrix Water Water Water Water Water Water Water Water Water Water	8270D 82705 82705	Prep Batch
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD GC VOA Analysis Batch: 2959 Lab Sample ID 680-122085-1 LCS 400-295942/3 LCSD 400-295942/3 LCSD 400-295942/2 Metals Prep Batch: 422364 Lab Sample ID 680-122085-1 680-122085-1 680-122085-2	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216 942 Client Sample ID GM-58A-0216 Lab Control Sample Lab Control Sample Dup Method Blank Client Sample ID GM-58A-0216 GM-58A-0216 GM-58A-0216	Total/NA Total/NA Prep Type Total/NA Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Total/NA	Water Water Matrix Water Water Water Water Water Water Water Water Water Water Water Water Water	Method 8270D 82705 8270	Prep Batch
680-122085-1 MSD LCS 680-422451/28-A MB 680-422451/28-A MB 680-422451/21-A Analysis Batch: 4246 Lab Sample ID 680-122085-1 MSD GC VOA Analysis Batch: 2959 Lab Sample ID 680-122085-1 LCS 400-295942/3 LCSD 400-295942/3 LCSD 400-295942/2 Metals Prep Batch: 422364 Lab Sample ID 680-122085-1 680-122085-1 680-122085-2 LCS 680-422364/2-A	Lab Control Sample Method Blank 533 Client Sample ID GM-58A-0216 942 Client Sample ID GM-58A-0216 Lab Control Sample Lab Control Sample Dup Method Blank Client Sample ID GM-58A-0216 GM-58A-0216 GM-58A-0216 GM-58A-0216 Client Sample ID	Total/NA Total/NA Prep Type Total/NA Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Total/NA Total/NA	Water Water Matrix Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water	Method 8270D 8270 82705	Prep Batch

Analysis Batch: 422624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122085-1	GM-58A-0216	Total Recoverable	Water	6010C	422364
680-122085-2	GM-58A- F(0.2)-0216	Dissolved	Water	6010C	422364
LCS 680-422364/2-A	Lab Control Sample	Total Recoverable	Water	6010C	422364
MB 680-422364/1-A	Method Blank	Total Recoverable	Water	6010C	422364

TestAmerica Savannah AND 3/21/16

# **QC Association Summary**

Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M TestAmerica Job ID: 680-122085-1 SDG: KOM031

# General Chemistry

Analysis Batch: 2394	10				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122085-1	GM-58A-0216	Total/NA	Water	415.1	
680-122085-1 DU	GM-58A-0216	Total/NA	Water	415.1	
680-122085-1 MS	GM-58A-0216	Total/NA	Water	415.1	
LCS 160-239410/5	Lab Control Sample	Total/NA	Water	415.1	
MB 160-239410/4	Method Blank	Total/NA	Water	415.1	
Analysis Batch: 2394	163				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122085-2	GM-58A- F(0.2)-0216	Dissolved	Water	415.1	
LCS 160-239463/5	Lab Control Sample	Dissolved	Water	415.1	
MB 160-239463/4	Method Blank	Dissolved	Water	415.1	
Analysis Batch: 4221	167				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122085-1	GM-58A-0216	Total/NA	Water	353.2	
LCS 680-422167/39	Lab Control Sample	Total/NA	Water	353.2	
MB 680-422167/38	Method Blank	Total/NA	Water	353.2	
Analysis Batch: 4224	174				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122085-1	GM-58A-0216	Total/NA	Water	310.1	
LCS 680-422474/8	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-422474/29	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-422474/7	Method Blank	Total/NA	Water	310.1	
Analysis Batch: 4231	112				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122085-1	GM-58A-0216	Total/NA	Water	325.2	
680-122085-1 DU	GM-58A-0216	Total/NA	Water	325.2	
LCS 680-423112/4	Lab Control Sample	Total/NA	Water	325.2	
MB 680-423112/47	Method Blank	Total/NA	Water	325.2	
Analysis Batch: 423	114				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122085-1	GM-58A-0216	Total/NA	Water	375.4	
680-122085-1 DU	GM-58A-0216	Total/NA	Water	375.4	
LCS 680-423114/1	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-423114/5	Lab Control Sample Dup	Total/NA	Water	375.4	
MB 680-423114/2	Method Blank	Total/NA	Water	375.4	

TestAmerica Savannah AMD 3 21 114

Page 16 of 24

TestAmerica Job ID: 680-122085-1 SDG: KOM031

# Client Sample ID: GM-58A-0216 Date Collected: 02/18/16 13:58 Date Received: 02/19/16 09:20

# Lab Sample ID: 680-122085-1 Matrix: Water

Ргер Туре	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			501.0 mL	0.5 mL	422451	02/23/16 16:28	RBS	TAL SAV
Total/NA	Analysis	8270D		1	501.0 mL	0.5 mL	423974	03/04/16 21:37	JEM	TAL SAV
Total/NA	Analysis	RSK-175		1	1 mL		295942	03/03/16 12:19	RM	TAL PEN
Total Recoverable	Prep	3005A			50 mL	50 mL	422364	02/22/16 13:49	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	422624	02/24/16 02:23	BCB	TAL SAV
Total/NA	Analysis	310.1		1			422474	02/22/16 14:53	KLD	TAL SAV
Total/NA	Analysis	325.2		2	2 mL	2 mL	423112	02/25/16 17:37	JME	TAL SAV
Total/NA	Analysis	353.2		1	2 mL	2 mL	422167	02/19/16 17:54	GRX	TAL SAV
Total/NA	Analysis	375.4		10	2 mL	2 mL	423114	02/26/16 09:25	JME	TAL SAV
Total/NA	Analysis	415.1		1	10 mL	10 mL	239410	03/04/16 16:10	JCB	TAL SL

# Client Sample ID: GM-58A- F(0.2)-0216 Date Collected: 02/18/16 13:58 Date Received: 02/19/16 09:20

Lab Sample ID: 680-122085-2 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	422364	02/22/16 13:49	CRW	TAL SAV
Dissolved	Analysis	6010C		1	50 mL	50 mL	422624	02/24/16 02:28	BCB	TAL SAV
Dissolved	Analysis	415.1		1	10 mL	10 mL	239463	03/07/16 18:11	JCB	TAL SL

#### Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001 TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858 TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# **Certification Summary**

## Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M

## Laboratory: TestAmerica Savannah

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

thority	Program		EPA Region	Certification ID	Expiration Date
nois NELAP			5	200022	11-30-16
The following analytes	s are included in this repo	rt, but are not certifi	ed under this certifica	tion:	
Analysis Method	Prep Method	Matrix	Analyt	e	
8270D	3520C	Water	4-Nitro	biphenyl	
The following analytes	s are included in this repo	ort, but certification is	s not offered by the go	overning authority:	
Analysis Method	Prep Method	Matrix	Analyt	e	
310.1		Water	Alkalin	iity	
310.1		Water	Carbo	n Dioxide, Free	
325.2		Water	Chlorie	de	
375.4		Water	Sulfate	Ð	
8270D	3520C	Water	1,1'-Bi	phenyl	
8270D	3520C	Water	1-chlo	ro-2,4-dinitrobenzene	
8270D	3520C	Water	1-Chlo	oro-3-nitrobenzene	
8270D	3520C	Water	2-chlo	ronitrobenzene /	
			4-chlo	ronitrobenzene	
8270D	3520C	Water	2-Nitro	obiphenyl	
8270D	3520C	Water	3,4-Di	chloronitrobenzene	

# Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	01-31-16 *
Arizona	State Program	9	AZ0710	01-11-17
Arkansas DEQ	State Program	6	88-0689	09-01-16
Florida	NELAP	4	E81010	06-30-16
Georgia	State Program	4	N/A	06-30-16
Illinois	NELAP	5	200041	10-09-16
lowa	State Program	7	367	07-31-16
Kansas	NELAP	7	E-10253	05-31-16 *
Kentucky (UST)	State Program	4	53	06-30-16
Kentucky (WW)	State Program	4	98030	12-31-16
Louisiana	NELAP	6	30976	06-30-16
Maryland	State Program	3	233	09-30-16
Massachusetts	State Program	1	M-FL094	06-30-16
Michigan	State Program	5	9912	06-30-16
New Jersey	NELAP	2	FL006	06-30-16
North Carolina (WW/SW)	State Program	4	314	12-31-16
Oklahoma	State Program	6	9810	08-31-16
Pennsylvania	NELAP	3	68-00467	01-31-17
Rhode Island	State Program	1	LAO00307	12-30-16
South Carolina	State Program	4	96026	06-30-16
Tennessee	State Program	4	TN02907	06-30-16
Texas	NELAP	6	T104704286-15-9	09-30-16
USDA	Federal		P330-13-00193	07-01-16
Virginia	NELAP	3	460166	06-14-16
West Virginia DEP	State Program	3	136	06-30-16

# Laboratory: TestAmerica St. Louis

\* Certification renewal pending - certification considered valid.



# **Certification Summary**

## Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M

# Laboratory: TestAmerica St. Louis (Continued)

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	003757	11-30-16



## Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M

TestAmerica Job ID: 680-122085-1 SDG: KOM031

lethod	Method Description	Protocol	Laboratory
3270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL PEN
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
15.1	DOC	MCAWW	TAL SL
15.1	TOC	MCAWW	TAL SL

#### **Protocol References:**

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

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

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

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001 TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858 TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

### TestAmerica Savannah

5102 LaRoche Avenue Savannah, GA 31404 Phone (912) 354-7858 Fax (912) 352-0165

# **Chain of Custody Record**



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THE LEADER IN ENVIRONMENTAL TESTING

	Client Information	Sampler Q Mag	other 1	hi Cano	A Kar	PM.	hele 🗆	,				Carri	er Trac	cking No	(s).		CO0	No	10264	2	
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	Company		129	$n_{1}$	mic	nete.kers	sey@l	testame	ancainc	.com		1				-	Job	e 199942 #	101		
	Address	Due Date Request	ed:			<b>E</b> IAH				alysi	IS Re	ques	ted		1		Pre	servation	Codes	s:	
	820 South Main Street. Suite 100 City.	TAT Requested (di	1ys):			- 11									1		H-A-	HCL	:	M - Hexane	
	St. Charles		0.00														C-	Zn Acetate Nitric Aced	(	0 - AsNaO2 P - Na2O4S	
	MO, 63301	00.0															1) E-1	NaHSO4 MeOH	C F	Q - Na2SO3 R - Na2S2SO3	
	1036-724-9191	42262863				0											G- H-	Amchior Ascorbic Ac	Sidi 1	S - H2SO4 T - TSP Dodeca	ahydrate
	emily_white@golder.com/aderhave Canter Cam	WO #				A-DP-N						red)					1- 1- 10 1- 10 1- 10	e DI Water	N N	U - Acetone V - MCAA	
	Project Name: WGK Route 3 Drum Site O&M	Project # 68005355				SUCCESSION OF SU				Carbot		d Filte					L-1	DA	z	Z - other (specif	90
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				Sample	Matrix	Fact B	2	KA/CC otal Fe	3	tal Or	BS Fe/	0g - 8	70 SV				Liber			1. 100	
			Sample	Type (C=Comp	(Wewater,) S-solid,		2-N0	1-AL	2, 375	1.10		1_Disi	0C - 82				INN				
Pa	Sample Identification	Sample Date	Time	G=grab)	BT=Tissue, AsAr	周期	353.	8 30	326	416	801	412	8271	141 42	100110			Specia	al Inst	ructions/No	ote:
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## **TestAmerica Savannah**

5102 LaRoche Avenue

**Chain of Custody Record** 





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THE LEADER IN ENVIRONMENTAL TESTING

Savannah, GA 31404 Phone (912) 354-7858 Fax (912) 352-0165

	Client Information (Sub Contract Lab)	Sampler:			Lab	PM: sev. Mic	hele	R				Carri	er Trac	iding No	o(s):	-	-	COC No: 680-422670 1	
	Client Contact: Shippina/Receiving	Phone:			E-M	ail: hele ker	sevíñ	itestan	ericain	c con	n	1						Page: Page:	
	Company. TestAmerica Laboratories Inc.					T	00)@	stootan	A.	anha	ie Pr		tod		100			Job#:	
	Address:	Due Date Requeste	d:							alys		ques	leu	Т		Т		Preservation Co	odes:
	City:	TAT Requested (da	iys):	-													14	A - HCL B - NaOH	M - Hexane
	Earth City State, Zip:	-				).											100	C - Zn Acetate	O - AsNaO2 P - Na2O4S
	MO, 63045	00.#	×														1. 1.	E - NaHSO4 F - MeOH	Q - Na2SO3 R - Na2S2SO3
	314-298-8566(Tel) 314-298-8757(Fax)	P0#.				(0)											194	G - Amchior H - Ascorbic Acid	S - H2SO4 T - TSP Dodecahydrate
	Email:	W0 #:				( paly		0									4 19 18	I - Ice J - DI Water	U - Acetone V - MCAA
	Project Name: 1016 Route 3 Drum Site O&M	Project #: 68005355				(Ne) B,air		8									alifier	K-EDTA L-EDA	W - ph 4-5 Z - other (specify)
	Site:	SSOW#:				anipie		FLT									dont.	Other:	
				Gammia	Matrix	ad S		FIELD									DAND	<u> </u>	
				Type	(Wewater,	Elitio	100	Diss									Nim		
-	Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	(C=comp, G=grab)	O-wasteloll, BT=Tissue, A=Ak	PEELE	415.1	415.1									latel	Special	nstructions/Note:
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3	Empty Kit Relinquished by:		Date:			Time:							Metho	d of Sh	ipmer	rt.			
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# Login Sample Receipt Checklist

Client: Solutia Inc.

Login Number: 122085

#### List Number: 1 Creator: White, Menica R

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

Job Number: 680-122085-1 SDG Number: KOM031

List Source: TestAmerica Savannah

Client: Solutia Inc.

## Login Number: 122085 List Number: 2 Creator: McKinney, Gerrod E

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (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	

Job Number: 680-122085-1 SDG Number: KOM031

List Creation: 02/23/16 10:33 AM

# AWD3/21/16

SDG KOM032 Sample Results from:

GM-31A



April 2016

1

#### Level IV Data Validation Summary Solutia Inc., W.G. Krummrich, Sauget, Illinois 1Q16 Route 3 Drum Site Monitoring Program

Company Name: <u>Golder Associates</u> Project Name: <u>WGK-1Q16 DRUM</u> Reviewer: A. Derhake Laboratory: TestAmerica SDG#: KOM032 Matrix: Water

Project Manager: A. Derhake Project Number: 140-3345 Sample Date: February 2016

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-0216, GM-31A-F(0.2)-0216, GM-31A-0216-AD, and GM-31A-0216-EB

Field	Information	YES	NO	NA
a)	Sampling dates noted?	$\bowtie$		
b)	Does the laboratory narrative indicate deficiencies?	$\boxtimes$		
Co	mments:			
<u>sı</u>	OC: No deficiencies noted.			
Di	ssolved Gases: No deficiencies noted.			
Me	etals: No deficiencies noted.			
<u>AI</u>	kalinity: No deficiencies noted.			
Ch	loride: No deficiencies noted.			
<u>Ni</u>	trate-Nitrite as Nitrogen: Sample GM-31A-0216 required dilution prior to analysis, reporting limits	were a	djuste	d accordingly.
<u>Su</u>	Ifate: Sample GM-31A-0216 required dilution prior to analysis, reporting limits were adjusted acco	ordingly.		
<u>TC</u>	C: No deficiencies noted.			
DC	DC: No deficiencies noted.			
Chai	n-of-Custody (COC)	YES	NO	NA
a)	Was the COC signed by both field and laboratory personnel?	$\boxtimes$		
b)	Were samples received in good condition?	$\boxtimes$		
Co	mments: Samples were received at 3.2°C, within the 4°C +/- 2°C criteria.			
Gene	eral	YES	NO	NA
a)	Were hold times met for sample analysis?	$\boxtimes$		
b)	Were the correct preservatives used?	$\boxtimes$		
c)	Was the correct method used?	$\boxtimes$		
d)	Any sample dilutions noted?	$\boxtimes$		
Co	mments: Samples GM-31A-0216 required dilution prior to sulfate and nitrate-nitrite analyses.			



	April 2016 2			140-3345
GC/N	IS Instrument Performance Check (IPC) and Internal Standards (IS)	YES	NO	NA
a)	IPC analyzed at the appropriate frequency and met the appropriate standards?	$\boxtimes$		
b)	Does DFTPP meet the ion abundance criteria?	$\boxtimes$		
c)	Internal Standard retention times and areas met appropriate criteria?	$\boxtimes$		
Co	omments: None			
Calib	prations	YES	NO	NA
a)	Initial calibration analyzed at the appropriate frequency and met the appropriate standards?	$\bowtie$		
b)	Continuing calibrations analyzed at the appropriate frequency and met the appropriate standards	s? ⊠		
c)	Initial calibration varifications and blanks analyzed at the appropriate frequency and met the app		Ll stand	
0)	initial calibration vehications and blanks analyzed at the appropriate nequency and met the app			
d)	Continuing calibration verifications and blanks analyzed at the appropriate frequency and met the	e approi	∟ oriate	standards?
α)				
С	omments: Analytes of interest met calibration standards.			
Blar	nks	YES	NO	NA
a)	Were blanks (trip, equipment, method) performed at required frequency?	$\boxtimes$		
b)	Were analytes detected in any blanks?		$\boxtimes$	
Co	mments: Equipment blank GM-31A-0216-EB was submitted with SDG KOM032.			
Matr	ix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA
a)	Was MS/MSD accuracy criteria met?	$\boxtimes$		
b)	Was MS/MSD precision criteria met?	$\boxtimes$		
Co	omments: <u>None.</u>			
Labo	pratory Control Sample (LCS)	YES	NO	NA
a)	LCS analyzed at the appropriate frequency and met appropriate standards?	$\boxtimes$		
Co	omments: None			
Surr	ogate (System Monitoring) Compounds	YES	NO	NA
a)	Surrogate compounds analyzed at the appropriate frequency and met appropriate standards?	$\boxtimes$		
Co	omments: None			
Dupl	icates	YES	NO	NA
a)	Were field duplicates collected?	$\boxtimes$		
b)	Was field duplicate precision criteria met?	$\boxtimes$		
Co	omments: Duplicate sample GM-31A-0216-AD was submitted with SDG KOM032.			

Additional Comments: None





# **Qualifications:**

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





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: 680-122104-1 TestAmerica Sample Delivery Group: KOM032 Client Project/Site: 1Q16 Route 3 Drum Site O&M

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

Attn: Mr. Jerry Rinaldi

Michule R.Kusz

..... LINKS .....

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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.

# **Definitions/Glossary**

Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M

# Qualifiers

GC/MS Ser	mi VOA
Qualifier	Qualifier Description
J	Indicates the analyte was analyzed for but not detected.
GC VOA	
Qualifier	Qualifier Description
J	Indicates the analyte was analyzed for but not detected.
Metals	
Qualifier	Qualifier Description
J	Indicates the analyte was analyzed for but not detected.
General Ch	nemistry
Qualifier	Qualifier Description
Ũ	Indicates the analyte was analyzed for but not detected.

# Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
<b>n</b>	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: 1Q16 Route 3 Drum Site O&M TestAmerica Job ID: 680-122104-1 SDG: KOM032

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	
680-122104-1	GM-31A-0216	Water	02/19/16 09:45	02/20/16 09:54	
680-122104-2	GM-31A-F(0.2)-0216	Water	02/19/16 09:45	02/20/16 09:54	
680-122104-3	GM-31A-0216-AD	Water	02/19/16 09:45	02/20/16 09:54	
680-122104-4	GM-31A-0216-EB	Water	02/19/16 10:25	02/20/16 09:54	

#### TestAmerica Job ID: 680-122104-1 SDG: KOM032

### Job ID: 680-122104-1

#### Laboratory: TestAmerica Savannah

Narrative

# CASE NARRATIVE

**Case Narrative** 

# Client: Solutia Inc.

# Project: 1Q16 Route 3 Drum Site O&M

# Report Number: 680-122104-1

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 2/20/2016 9:54 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2° C.

#### SEMIVOLATILE ORGANIC COMPOUNDS (AQUEOUS)

Samples GM-31A-0216 (680-122104-1), GM-31A-0216-AD (680-122104-3) and GM-31A-0216-EB (680-122104-4) were analyzed for Semivolatile Organic Compounds (Aqueous) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 02/23/2016 and analyzed on 03/04/2016.

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

#### DISSOLVED GASES

Sample GM-31A-0216 (680-122104-1) was analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 03/03/2016.

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

#### METALS (ICP)

Sample GM-31A-F(0.2)-0216 (680-122104-2) was analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/25/2016 and analyzed on 02/26/2016.

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

#### METALS (ICP)

Sample GM-31A-0216 (680-122104-1) was analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/25/2016 and analyzed on 02/26/2016.

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

#### ALKALINITY

Sample GM-31A-0216 (680-122104-1) was analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 02/22/2016.

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

#### CHLORIDE

Sample GM-31A-0216 (680-122104-1) was analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on

ANO 317

# Job ID: 680-122104-1 (Continued)

### Laboratory: TestAmerica Savannah (Continued)

02/25/2016.

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

#### NITRATE-NITRITE AS NITROGEN

Sample GM-31A-0216 (680-122104-1) was analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 02/20/2016.

Sample GM-31A-0216 (680-122104-1)[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.

#### SULFATE

Sample GM-31A-0216 (680-122104-1) was analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 02/26/2016.

Sample GM-31A-0216 (680-122104-1)[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

Sample GM-31A-0216 (680-122104-1) was analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 03/04/2016.

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

#### DISSOLVED ORGANIC CARBON (DOC)

Sample GM-31A-F(0.2)-0216 (680-122104-2) was analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 03/07/2016.

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

TestAmerica Savannah

# **Client Sample Results**

Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M TestAmerica Job ID: 680-122104-1 SDG: KOM032

## Client Sample ID: GM-31A-0216 Date Collected: 02/19/16 09:45 Date Received: 02/20/16 09:54

# Lab Sample ID: 680-122104-1 Matrix: Water

Method: 8270D - Semivolatile Organi	ic Co	mpounds	(GC/MS)						
Analyte R	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 22:01	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 22:01	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 22:01	1
2-chloronitrobenzene /	20	U	20		ug/L		02/23/16 16:28	03/04/16 22:01	1
4-chloronitrobenzene									
3,4-Dichloronitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 22:01	1
2,4-Dichlorophenol	10	U	10		ug/L		02/23/16 16:28	03/04/16 22:01	1
Nitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 22:01	1
2-Nitrobiphenyl	10		10		ug/L		02/23/16 16:28	03/04/16 22:01	1
3-Nitrobiphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 22:01	1
4-Nitrobiphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 22:01	1
Pentachlorophenol	50	U	50		ug/L		02/23/16 16:28	03/04/16 22:01	1
2,4,6-Trichlorophenol	10	U	10		ug/L		02/23/16 16:28	03/04/16 22:01	1
Surrogate %Rec	overy	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	65		32 - 113				02/23/16 16:28	03/04/16 22:01	1
2-Fluorophenol	52		26 - 109				02/23/16 16:28	03/04/16 22:01	1
Nitrobenzene-d5	66		32-118				02/23/16 16:28	03/04/16 22:01	1
Phenol-d5	58		27-110				02/23/16 16:28	03/04/16 22:01	1
Terphenyl-d14	43		10-126				02/23/16 16:28	03/04/16 22:01	1
2,4,6-Tribromophenol	56		39 - 124				02/23/16 16:28	03/04/16 22:01	1
Method: RSK-175 - Dissolved Gases	(GC								
Analyte F	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	1.9		1.0		ug/L			03/03/16 12:29	1
Ethane	1.0	U	1.0		ug/L			03/03/16 12:29	1
Ethylene	1.0	U	1.0		ug/L			03/03/16 12:29	1
Method: 6010C - Metals (ICP) - Total	Reco	overable							
Analyte F	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.4		0.050		mg/L		02/25/16 13:53	02/26/16 23:15	1
Manganese	0.46		0.010		mg/L		02/25/16 13:53	02/26/16 23:15	1
General Chemistry									
Analyte F	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	32		1.0		mg/L			02/25/16 16:56	1
Nitrate as N	2.7	D	0.25		mg/L			02/20/16 13:44	5
Sulfate	100	b	25		mg/L			02/26/16 09:01	5
Total Organic Carbon	2.9	100	1.0		mg/L			03/04/16 16:52	1
Analyte F	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	350		5.0		mg/L			02/22/16 16:07	1
Carbon Dioxide, Free	41		5.0		mg/L			02/22/16 16:07	1


Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drui	m Site O&M					-	TestAmerica	Job ID: 680-12 SDG: K	2104-1 OM032
Client Sample ID: GM-31	A-F(0.2)-02	16	113((1));			La	b Sample	ID: 680-122	104-2
Date Collected: 02/19/16 09:4	5							Matrix	Water
Date Received: 02/20/16 09:54	1								
Method: 6010C - Metals (ICP	) - Dissolved								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.050	<u> </u>	0.050		mg/L		02/25/16 13:53	02/26/16 23:28	1
Manganese, Dissolved	0.45		0.010		mg/L		02/25/16 13:53	02/26/16 23:28	1
General Chemistry - Dissolv	ed								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.6		1.0		mg/L			03/07/16 18:23	1

### **Client Sample Results**

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### **Client Sample Results**

Client Sample ID: GM-31A-0216-AD Date Collected: 02/19/16 09:45 Date Received: 02/20/16 09:54

### Lab Sample ID: 680-122104-3

Matrix: Water

Method: 8270D - Semivola Analyte	tile Organic Co Result	Qualifier	(GC/MS) RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:25	1
1-chloro-2,4-dinitrobenzene	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:25	1
1-Chloro-3-nitrobenzene	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:25	1
2-chloronitrobenzene /	20	U	20		ug/L		02/23/16 16:28	03/04/16 22:25	1
4-chloronitrobenzene									
3,4-Dichloronitrobenzene	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:25	1
2,4-Dichlorophenol	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:25	1
Nitrobenzene	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:25	1
2-Nitrobiphenyl	12		9.9		ug/L		02/23/16 16:28	03/04/16 22:25	1
3-Nitrobiphenyl	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:25	1
4-Nitrobiphenyl	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:25	1
Pentachlorophenol	50	U	50		ug/L		02/23/16 16:28	03/04/16 22:25	1
2,4,6-Trichlorophenol	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	72		32-113				02/23/16 16:28	03/04/16 22:25	1
2-Fluorophenol	58		26-109				02/23/16 16:28	03/04/16 22:25	1
Nitrobenzene-d5	77		32-118				02/23/16 16:28	03/04/16 22:25	1
Phenol-d5	61		27-110				02/23/16 16:28	03/04/16 22:25	1
Terphenyl-d14	29		10-126				02/23/16 16:28	03/04/16 22:25	1
2,4,6-Tribromophenol	60		39 - 124				02/23/16 16:28	03/04/16 22:25	1

0 TestAmerica Savannah

### **Client Sample Results**

#### Client Sample ID: GM-31A-0216-EB Date Collected: 02/19/16 10:25

Date Received: 02/20/16 09:54

TestAmerica Job ID: 680-122104-1 SDG: KOM032

#### Lab Sample ID: 680-122104-4 Matrix: Water

Method: 8270D - Semivola	tile Organic Co	mpounds	(GC/MS)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:49	1
1-chloro-2,4-dinitrobenzene	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:49	1
1-Chloro-3-nitrobenzene	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:49	1
2-chloronitrobenzene /	20	U	20		ug/L		02/23/16 16:28	03/04/16 22:49	1
4-chloronitrobenzene									
3,4-Dichloronitrobenzene	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:49	1
2,4-Dichlorophenol	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:49	1
Nitrobenzene	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:49	1
2-Nitrobiphenyl	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:49	1
3-Nitrobiphenyl	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:49	1
4-Nitrobiphenyl	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:49	1
Pentachlorophenol	50	U	50		ug/L		02/23/16 16:28	03/04/16 22:49	1
2,4,6-Trichlorophenol	9.9	U	9.9		ug/L		02/23/16 16:28	03/04/16 22:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	50		32-113				02/23/16 16:28	03/04/16 22:49	1
2-Fluorophenol	42		26 - 109				02/23/16 16:28	03/04/16 22:49	1
Nitrobenzene-d5	57		32-118				02/23/16 16:28	03/04/16 22:49	1
Phenol-d5	43		27-110				02/23/16 16:28	03/04/16 22:49	1
Terphenyl-d14	52		10-126				02/23/16 16:28	03/04/16 22:49	1
2,4,6-Tribromophenol	39		39 - 124				02/23/16 16:28	03/04/16 22:49	1

huz 22/16 TestAmerica Savannah

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

Lab Sample ID: MB 680-422 Matrix: Water	2451/21-A						Client Samp	le ID: Method	Blank
Analysis Batch: 423974								Pren Batch	422451
Analysis Batch. 425574	MB	MB						riep batch.	422451
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
2-chloronitrobenzene /	20	U	20		ug/L		02/23/16 16:28	03/04/16 20:48	1
4-chloronitrobenzene 3.4-Dichloronitrobenzene	10	U	10		ua/L		02/23/16 16:28	03/04/16 20:48	1
2.4-Dichlorophenol	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
Nitrobenzene	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
2-Nitrobiphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
3-Nitrobiphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
4-Nitrobiphenyl	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
Pentachlorophenol	50	U	50		ug/L		02/23/16 16:28	03/04/16 20:48	1
2,4,6-Trichlorophenol	10	U	10		ug/L		02/23/16 16:28	03/04/16 20:48	1
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	72		32-113				02/23/16 16:28	03/04/16 20:48	1
2-Fluorophenol	59		26 - 109				02/23/16 16:28	03/04/16 20:48	1
Nitrobenzene-d5	75		32 - 118				02/23/16 16:28	03/04/16 20:48	1
Phenol-d5	70		27-110				02/23/16 16:28	03/04/16 20:48	1
Terphenyl-d14	92		10-126				02/23/16 16:28	03/04/16 20:48	1
2,4,6-Tribromophenol	61		39 - 124				02/23/16 16:28	03/04/16 20:48	1

#### Lab Sample ID: LCS 680-422451/22-A Matrix: Water Analysis Batch: 422949

#### **Client Sample ID: Lab Control Sample**

**Client Sample ID: Lab Control Sample** 

#### Prep Type: Total/NA Prep Batch: 422451

Analysis Baton. 422040	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1'-Biphenyl	100	69.2		ug/L	_	69	45 - 130
2,4-Dichlorophenol	100	70.0		ug/L		70	44 - 130
Nitrobenzene	100	64.5		ug/L		65	43 - 130
Pentachlorophenol	200	161		ug/L		80	33 - 130
2.4.6-Trichlorophenol	100	74.8		ua/L		75	47 - 130

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
2-Fluorobiphenyl	66		32-113
2-Fluorophenol	51		26 - 109
Nitrobenzene-d5	62		32-118
Phenol-d5	55		27-110
Terphenyl-d14	82		10-126
2,4,6-Tribromophenol	77		39 - 124

#### Lab Sample ID: LCS 680-422451/28-A Matrix: Water

#### Analysis Batch: 423974

Analysis Batch: 423974							Prep Batch: 422451
	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
1-chloro-2,4-dinitrobenzene	100	72.2		ug/L		72	51 - 130
1-Chloro-3-nitrobenzene	100	71.0		ug/L		71	31 - 130

Prep Type: Total/NA

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

Lab Sample ID: LCS 680-4 Matrix: Water Analysis Batch: 423974	422451/28-A					Clie	nt Sa	mple ID	: Lab Control Sample Prep Type: Total/NA Prep Batch: 422451
-			Spike	LCS	LCS				%Rec.
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits
2-chloronitrobenzene /			200	142		ug/L		71	34 - 130
3,4-Dichloronitrobenzene		×.	100	77.3		ug/L		77	34 - 130
2-Nitrobiphenyl			100	76.3		ug/L		76	39 - 130
3-Nitrobiphenyl			100	86.0		ug/L		86	40 - 130
4-Nitrobiphenyl			100	87.5		ug/L		87	39 - 130
	LCS	LCS							
Surrogate	%Recovery	Qualifier	Limits						
2-Fluorobiphenyl	56		32-113						
2-Fluorophenol	59		26 - 109						
Nitrobenzene-d5	74		32-118						
Phenol-d5	65		27-110						
Terphenyl-d14	89		10-126						
2,4,6-Tribromophenol	51		39 - 124						

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

Lab Sample ID: MB 400-295942 Matrix: Water Analysis Batch: 295942	2						Client Sam	ple ID: Method Prep Type: To	i Blank otal/NA
Analysis Baton: 200042	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	1.0	<u> </u>	1.0		ug/L			03/03/16 09:37	1
Ethane	1.0	U	1.0		ug/L			03/03/16 09:37	1
Ethylene	1.0	U	1.0		ug/L			03/03/16 09:37	1
Lab Sample ID: LCS 400-295942	2/3					Client	Sample ID	: Lab Control S	Sample

#### Lab Sample ID: LCS 400-295942/3 Matrix: Water Analysis Batch: 295942

Analysis Baton. 200012								
	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Methane	169	166		ug/L		98	85-115	
Ethane	321	317		ug/L		99	85 - 115	
Ethylene	299	285		ua/L		95	85-115	

#### Lab Sample ID: LCSD 400-295942/4

Matrix: Water Analysis Batch: 295942

Spike	LCSD	LCSD				%Rec.		RPD
Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
169	163		ug/L	_	97	85-115	1	20
321	315		ug/L		98	85 - 115	0	20
299	284		ug/L		95	85 - 115	1	20
	Spike Added 169 321 299	Spike         LCSD           Added         Result           169         163           321         315           299         284	Spike         LCSD         LCSD           Added         Result         Qualifier           169         163         163           321         315         299         284	Spike         LCSD         LCSD           Added         Result         Qualifier         Unit           169         163         ug/L           321         315         ug/L           299         284         ug/L	Spike         LCSD         LCSD           Added         Result         Qualifier         Unit         D           169         163         ug/L         D           321         315         ug/L         D           299         284         ug/L         D	Spike         LCSD         LCSD           Added         Result         Qualifier         Unit         D         %Rec           169         163         ug/L         98         98           299         284         ug/L         95	Spike         LCSD         LCSD         %Rec.           Added         Result         Qualifier         Unit         D         %Rec.           169         163         ug/L         D         %Rec.         Limits           321         315         ug/L         98         85 - 115           299         284         ug/L         95         85 - 115	Spike         LCSD         LCSD         %Rec.           Added         Result         Qualifier         Unit         D         %Rec.         Limits         RPD           169         163         ug/L         97         85-115         1           321         315         ug/L         98         85-115         0           299         284         ug/L         95         85-115         1

TestAmerica Savannah 22/10

Prep Type: Total/NA

Prep Type: Total/NA

Client Sample ID: Lab Control Sample Dup

Lab Sample ID: MB 680-42289	5/1-A						Clie	ent Samp	le ID: Method	Blank
Matrix: Water							F	rep Type	: Total Recov	/erable
Analysis Batch: 423168	MB	MB							Prep Batch:	422895
Analyte	Result	Qualifier	RL		MDL Unit	r	D P	repared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/l		02/2	25/16 13:53	02/26/16 21:19	1
Iron, Dissolved	0.050	U	0.050		mg/l	-3	02/2	25/16 13:53	02/26/16 21:19	1
Manganese	0.010	U	0.010		mg/l	-	02/2	25/16 13:53	02/26/16 21:19	1
Manganese, Dissolved	0.010	U	0.010		mg/l	-S	02/2	25/16 13:53	02/26/16 21:19	1
Lab Sample ID: LCS 680-4228 Matrix: Water	95/2-A					Clie	nt Sa F	mple ID: Prep Type	Lab Control S	Sample /erable
Analysis Batch: 423168			Spike	LCS	LCS				Prep Batch: 4 %Rec.	422895
Analysis Batch: 423168			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Prep Batch: 4 %Rec. Limits	422895
Analysis Batch: 423168 Analyte Iron			Spike Added 5.00	LCS Result 5.19	LCS Qualifier	Unit mg/L	D	%Rec	Prep Batch: 4 %Rec. Limits 80 - 120	422895
Analysis Batch: 423168 Analyte Iron Iron, Dissolved	-		Spike Added 5.00 5.00	LCS Result 5.19 5.19	LCS Qualifier	Unit mg/L mg/L	D	%Rec 104 104	Prep Batch: 4 %Rec. Limits 80 - 120 80 - 120	422895
Analysis Batch: 423168 Analyte Iron Iron, Dissolved Manganese			Spike Added 5.00 5.00 0.500	LCS Result 5.19 5.19 0.527	LCS Qualifier	Unit mg/L mg/L mg/L	D	%Rec 104 104 105	Prep Batch: 4 %Rec. Limits 80 - 120 80 - 120 80 - 120	422895

#### Method: 310.1 - Alkalinity

									Prep Type: T	otal/NA
1B										
ualifier		RL		RL	Unit		D P	repared	Analyzed	Dil Fac
F		5.0			mg/L				02/22/16 14:04	1
Ē.		5.0			mg/L				02/22/16 14:04	1
						Cli	ent Sa	mple ID	: Lab Control	Sample
									Prep Type: T	otal/NA
	Spike		LCS	LCS					%Rec.	
4	Added	F	Result	Qua	lifier	Unit	D	%Rec	Limits	
	250		263		1	mg/L		105	80 - 120	
					С	lient S	ample	ID: Lat	Control Sam	ple Dup
									Prep Type: T	otal/NA
	Spike		LCSD	LCS	D				%Rec.	RPD
4	Added	F	Result	Qua	lifier	Unit	D	%Rec	Limits RP	D Limit
	250		268			mg/L		107	80 - 120	2 30
	B Jalifier	B Jalifier Spike Added 250 Spike Added 250	B Jalifier RL 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	B Jalifier RL 5.0 5.0 5.0 Added Result 250 263 Spike LCSD Added Result 250 263	B Jalifier RL RL 5.0 5.0 Spike LCS LCS Added Result Qua 250 263 LCSD LCS LCS Qua 263 Qua 250 268	B       RL       RL       Vnit         1alifier       5.0       5.0       mg/L         5.0       5.0       mg/L       mg/L         Added       Result       Qualifier         263       263       C         Spike       LCSD       LCSD         Added       Result       Qualifier         263       263       C	B Jalifier RL RL Unit 5.0 RL Unit mg/L Cli Spike LCS LCS Added Result Qualifier Unit mg/L Client S Spike LCSD LCSD Spike LCSD LCSD Added Result Qualifier Unit mg/L Unit mg/L	B Jalifier RL RL Unit D P 5.0 mg/L Client Sat Client Sat Added Result Qualifier Unit D Client Sample Client Sample Client Sample Client Sample Client Sample Client Sample Client Sample Client Sample	B       Ialifier       RL       RL       Unit       D       Prepared         5.0       5.0       mg/L       mg/L       Client Sample ID         Spike       LCS       LCS       LCS       Mail Client       D       %Rec         Added       Result       Qualifier       Unit       D       %Rec         Spike       LCS       LCS       Client Sample ID         Client Sample ID:       263       Client Sample ID:       Late         Spike       LCSD       LCSD       Mail Client Sample ID:       Late         Added       Result       Qualifier       Unit       D       %Rec         250       268       Mail Client       Mail Client       D       %Rec	B       Ialifier       RL       RL       Init       D       Prepared       Analyzed         5.0       5.0       mg/L       02/22/16       14:04         5.0       mg/L       02/22/16       14:04         Client Sample ID: Lab Control Prep Type: T         Spike       LCS       LCS       Mail Prep Type: T         Added       Result       Qualifier       Unit       D       %Rec.         Limits       250       263       Unit       D       %Rec.       Limits         Spike       LCSD       263       Unit       D       %Rec.       Limits       Prep Type: T         Spike       LCSD       LCSD       LCSD       Mail Prep Type: T       Mail Prep Type: T         Spike       LCSD       LCSD       LCSD       Mail Prep Type: T         Spike       LCSD       LCSD       Mail Prep Type: T         Mail Prep Type: T       Mail Prep Type: T       Mail Prep Type: T         Spike       LCSD       LCSD       Mail Prep Type: T         Mail Prep Type: T       Mail Prep Type: T       Mail Prep Type: T         Mail Prep Type: T       Mail Prep Type: T       Mail Prep Type: T         Mail Prep Type: T       Mail P

Lab Sample ID: MB 680-423112/47 Matrix: Water							Client Sam	ple ID: Method Prep Type: To	l Blank otal/NA
Analysis Batch: 423112	MB	MB						, top type: t	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			02/26/16 12:01	1

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Method: 325.2 - Chloride (Continued) Lab Sample ID: LCS 680-423112/1 **Client Sample ID: Lab Control Sample** Matrix: Water Prep Type: Total/NA Analysis Batch: 423112 Spike LCS LCS %Rec. Added **Result Qualifier** Limits %Rec Analyte Unit D 25.0 mg/L 103 85-115 Chloride 25.8 Lab Sample ID: LCS 680-423112/4 **Client Sample ID: Lab Control Sample** Matrix: Water Prep Type: Total/NA Analysis Batch: 423112 Spike LCS LCS %Rec. Added Limits Analyte **Result Qualifier** %Rec Unit D 25.0 Chloride 25.9 mg/L 104 85 - 115 Method: 353.2 - Nitrogen, Nitrate-Nitrite Lab Sample ID: MB 680-422204/13 Client Sample ID: Method Blank Matrix: Water Prep Type: Total/NA Analysis Batch: 422204 MB MB Analyte **Result Qualifier** RL MDL Unit Dil Fac D Prepared Analyzed Nitrate as N 0.050 U 0.050 mg/L 02/20/16 11:04 1 Lab Sample ID: LCS 680-422204/16 Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total/NA Analysis Batch: 422204 Spike LCS LCS %Rec. Limits Added Analyte **Result Qualifier** Unit D %Rec Nitrate as N 75 - 125 0.500 0.538 mg/L 108 Nitrate Nitrite as N 1.00 1.06 mg/L 106 90-110 Nitrite as N 0.500 0.522 mg/L 104 90-110 Method: 375.4 - Sulfate Lab Sample ID: MB 680-423114/2 Client Sample ID: Method Blank Matrix: Water Prep Type: Total/NA Analysis Batch: 423114 MR MR Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed **Dil Fac** Sulfate 5.0 U 5.0 02/25/16 17:00 mg/L 1 Lab Sample ID: LCS 680-423114/1 **Client Sample ID: Lab Control Sample** Matrix: Water Prep Type: Total/NA Analysis Batch: 423114 LCS LCS Spike %Rec. **Result Qualifier** Analyte Added Unit D %Rec Limits 20.0 Sulfate 21.6 mg/L 108 75-125 Lab Sample ID: LCSD 680-423114/5 Client Sample ID: Lab Control Sample Dup Matrix: Water Prep Type: Total/NA Analysis Batch: 423114 LCSD LCSD Spike %Rec. RPD Added Analyte **Result Qualifier** Unit D %Rec Limits RPD Limit Sulfate 20.0 20.9 104 75 - 125 3 30 mg/L

TestAmerica Savannah 110 3 22/16

### **QC Sample Results**

TestAmerica Job ID: 680-122104-1 SDG: KOM032

Method: 415.1 - DOC

Lab Sample ID: MB 160-23	9463/4									C	lie	nt Sam	ple ID: Method	Blank
Matrix: Water												1	Prep Type: Dis	solved
Analysis Batch: 239463			MD											
Analyte	Re		Qualifier		RI	1	MDI	Unit		п	P	renared	Analyzad	Dil Fac
Dissolved Organic Carbon		1.0	U		1.0	-		ma/l				epareu	03/07/16 17:18	1
		1.0			1.0			ing/c					00/07/10 17:10	
Lab Sample ID: LCS 160-23 Matrix: Water	39463/5								Cli	ent S	Sar	nple ID	: Lab Control S Prep Type: Dis	Sample
Analysis Batch: 239463													1000 V	
				Spike		LCS	LCS	5					%Rec.	
Analyte				Added		Result	Qua	lifier	Unit		D	%Rec	Limits	
Dissolved Organic Carbon		-		10.0		9.76	-		mg/L		-	98	90 - 110	
Lab Sample ID: 680-122104 Matrix: Water Analysis Batch: 239463	4-2 MS								Cli	ent \$	Sai	mple ID	: GM-31A-F(0.: Prep Type: Dis	2)-0216 solved
	Sample	San	nple	Spike		MS	MS						%Rec.	
Analyte	Result	Qua	lifier	Added		Result	Qua	lifier	Unit		D	%Rec	Limits	
Dissolved Organic Carbon	2.6			5.00		7.77	-		mg/L		-	103	82 - 132	
Matrix: Water Analysis Batch: 239463	Sample	San	nle			ווס	חח		U.	one	ou.		Prep Type: Dis	solved
Analyte	Result	Qua	lifier			Result	Qua	lifier	Unit		р		RPI	) Limit
Dissolved Organic Carbon	2.6	ature			-	2.76	Que		mg/L		-			6 20
Method: 415.1 - TOC														
Lab Sample ID: MB 160-23 Matrix: Water	9410/4									c	Clie	ent Sam	ple ID: Method Prep Type: To	d Blank otal/NA
Analysis Batch: 239410		MD	MD											
Analyte	R	sult	Qualifier		RI	8	MDI	Unit		р	P	renared	Analyzed	Dil Fac
Total Organic Carbon		1.0	U	-	1.0			mg/L			1.0013	opurou	03/04/16 15:36	1
Lab Sample ID: LCS 160-2 Matrix: Water	39410/5								Cli	ent S	Sar	nple ID	: Lab Control : Prep Type: Te	Sample otal/NA
Analysis Batch: 239410				Calke		1.00	1.00						% Baa	
Analyte				Shike		Rocult	0	lifior	Unit		P	% Pag	/ortec.	
Total Organic Carbon		-	C	10.0		OFF	QUE	mer	mall		5	70rtec	00 110	
				10.0		0.00			IIIU/L			30	30 - 110	

TestAmerica Savannah AND 3/22/10

### **QC Association Summary**

Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M TestAmerica Job ID: 680-122104-1 SDG: KOM032

GC/MS Semi VOA Prep Batch: 422451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122104-1	GM-31A-0216	Total/NA	Water	3520C	
680-122104-3	GM-31A-0216-AD	Total/NA	Water	3520C	
680-122104-4	GM-31A-0216-EB	Total/NA	Water	3520C	
LCS 680-422451/22-A	Lab Control Sample	Total/NA	Water	3520C	
LCS 680-422451/28-A	Lab Control Sample	Total/NA	Water	3520C	
MB 680-422451/21-A	Method Blank	Total/NA	Water	3520C	
Analysis Batch: 4229	49				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-422451/22-A	Lab Control Sample	Total/NA	Water	8270D	422451
Analysis Batch: 4239	74				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122104-1	GM-31A-0216	Total/NA	Water	8270D	422451
680-122104-3	GM-31A-0216-AD	Total/NA	Water	8270D	422451
680-122104-4	GM-31A-0216-EB	Total/NA	Water	8270D	422451
LCS 680-422451/28-A	Lab Control Sample	Total/NA	Water	8270D	422451
MB 680-422451/21-A	Method Blank	Total/NA	Water	8270D	422451

#### GC VOA

#### Analysis Batch: 295942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122104-1	GM-31A-0216	Total/NA	Water	RSK-175	
LCS 400-295942/3	Lab Control Sample	Total/NA	Water	<b>RSK-175</b>	
LCSD 400-295942/4	Lab Control Sample Dup	Total/NA	Water	<b>RSK-175</b>	
MB 400-295942/2	Method Blank	Total/NA	Water	<b>RSK-175</b>	

#### Metals

#### Prep Batch: 422895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122104-1	GM-31A-0216	Total Recoverable	Water	3005A	
680-122104-2	GM-31A-F(0.2)-0216	Dissolved	Water	3005A	
LCS 680-422895/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-422895/1-A	Method Blank	Total Recoverable	Water	3005A	

#### Analysis Batch: 423168

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122104-1	GM-31A-0216	Total Recoverable	Water	6010C	422895
680-122104-2	GM-31A-F(0.2)-0216	Dissolved	Water	6010C	422895
LCS 680-422895/2-A	Lab Control Sample	Total Recoverable	Water	6010C	422895
MB 680-422895/1-A	Method Blank	Total Recoverable	Water	6010C	422895

#### **General Chemistry**

#### Analysis Batch: 239410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122104-1	GM-31A-0216	Total/NA	Water	415.1	
LCS 160-239410/5	Lab Control Sample	Total/NA	Water	415.1	

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### **QC Association Summary**

#### Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M

#### **General Chemistry (Continued)**

#### Analysis Batch: 239410 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 160-239410/4	Method Blank	Total/NA	Water	415.1	
Analysis Batch: 2394	63				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122104-2	GM-31A-F(0.2)-0216	Dissolved	Water	415.1	
680-122104-2 DU	GM-31A-F(0.2)-0216	Dissolved	Water	415.1	
680-122104-2 MS	GM-31A-F(0.2)-0216	Dissolved	Water	415.1	
LCS 160-239463/5	Lab Control Sample	Dissolved	Water	415.1	
MB 160-239463/4	Method Blank	Dissolved	Water	415.1	
nalysis Batch: 4222	204				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122104-1	GM-31A-0216	Total/NA	Water	353.2	
LCS 680-422204/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-422204/13	Method Blank	Total/NA	Water	353.2	
Analysis Batch: 4224	174				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122104-1	GM-31A-0216	Total/NA	Water	310.1	
LCS 680-422474/8	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-422474/29	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-422474/7	Method Blank	Total/NA	Water	310.1	
Analysis Batch: 4231	112				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122104-1	GM-31A-0216	Total/NA	Water	325.2	
LCS 680-423112/1	Lab Control Sample	Total/NA	Water	325.2	
LCS 680-423112/4	Lab Control Sample	Total/NA	Water	325.2	
MB 680-423112/47	Method Blank	Total/NA	Water	325.2	
Analysis Batch: 423	114				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-122104-1	GM-31A-0216	Total/NA	Water	375.4	
LCS 680-423114/1	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-423114/5	Lab Control Sample Dup	Total/NA	Water	375.4	
MB 680-423114/2	Method Blank	Total/NA	Water	375.4	



Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M TestAmerica Job ID: 680-122104-1 SDG: KOM032

#### Client Sample ID: GM-31A-0216 Date Collected: 02/19/16 09:45 Date Received: 02/20/16 09:54

## Lab Sample ID: 680-122104-1

Matrix: Water

Ргер Туре	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			1001.4 mL	1.0 mL	422451	02/23/16 16:28	RBS	TAL SAV
Total/NA	Analysis	8270D		1	1001.4 mL	1.0 mL	423974	03/04/16 22:01	JEM	TAL SAV
Total/NA	Analysis	RSK-175		1	1 mL		295942	03/03/16 12:29	RM	TAL PEN
Total Recoverable	Prep	3005A			50 mL	50 mL	422895	02/25/16 13:53	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	423168	02/26/16 23:15	BCB	TAL SAV
Total/NA	Analysis	310.1		1			422474	02/22/16 16:07	KLD	TAL SAV
Total/NA	Analysis	325.2		1	2 mL	2 mL	423112	02/25/16 16:56	JME	TAL SAV
Total/NA	Analysis	353.2		5	2 mL	2 mL	422204	02/20/16 13:44	GRX	TAL SAV
Total/NA	Analysis	375.4		5	2 mL	2 mL	423114	02/26/16 09:01	JME	TAL SAV
Total/NA	Analysis	415.1		1	10 mL	10 mL	239410	03/04/16 16:52	JCB	TAL SL

#### Client Sample ID: GM-31A-F(0.2)-0216 Date Collected: 02/19/16 09:45 Date Received: 02/20/16 09:54

Ргер Туре	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	422895	02/25/16 13:53	CRW	TAL SAV
Dissolved	Analysis	6010C		1	50 mL	50 mL	423168	02/26/16 23:28	BCB	TAL SAV
Dissolved	Analysis	415.1		1	10 mL	10 mL	239463	03/07/16 18:23	JCB	TAL SL

#### Client Sample ID: GM-31A-0216-AD Date Collected: 02/19/16 09:45

Date Received: 02/20/16 09:54

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		5 8
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			1005.9 mL	1.0 mL	422451	02/23/16 16:28	RBS	TAL SAV
Total/NA	Analysis	8270D		1	1005.9 mL	1.0 mL	423974	03/04/16 22:25	JEM	TAL SAV

#### Client Sample ID: GM-31A-0216-EB Date Collected: 02/19/16 10:25

Date Received: 02/20/16 09:54

<b>-</b>	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			1005.3 mL	1.0 mL	422451	02/23/16 16:28	RBS	TAL SAV
Total/NA	Analysis	8270D		1	1005.3 mL	1.0 mL	423974	03/04/16 22:49	JEM	TAL SAV

#### Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001 TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858 TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

#### Lab Sample ID: 680-122104-4 Matrix: Water

Lab Sample ID: 680-122104-3

Matrix: Water

TestAmerica Savannah pup

7 8 9

### Lab Sample ID: 680-122104-2 Matrix: Water

### **Certification Summary**

#### Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M

#### Laboratory: TestAmerica Savannah

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

thority	Program		EPA Region	Certification ID	Expiration Date
iois	NELAP	NELAP		200022	11-30-16
The following analytes	s are included in this repo	ort, but are not certifi	ed under this certifica	tion:	
Analysis Method	Prep Method	Matrix	Analyt	е	
8270D	3520C	Water	4-Nitro	biphenyl	
The following analytes	s are included in this repo	rt, but certification is	not offered by the go	overning authority:	
Analysis Method	Prep Method	Matrix	Analyt	e	
310.1		Water	Alkalin		
310.1		Water	Carbo	n Dioxide, Free	
325.2		Water	Chlorie	de	
375.4		Water	Sulfate	9	
8270D	3520C	Water	1,1'-Bi	phenyl	
8270D	3520C	Water	1-chlo	ro-2,4-dinitrobenzene	
8270D	3520C	Water	1-Chlo	oro-3-nitrobenzene	
8270D	3520C	Water	2-chlo	ronitrobenzene /	
			4-chlo	ronitrobenzene	
8270D	3520C	Water	2-Nitro	biphenyl	
8270D	3520C	Water	3,4-Dichloronitrobenzene		
82700	3520C	Water	3-Nitro		

#### Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	01-31-16 *
Arizona	State Program	9	AZ0710	01-11-17
Arkansas DEQ	State Program	6	88-0689	09-01-16
Florida	NELAP	4	E81010	06-30-16
Georgia	State Program	4	N/A	06-30-16
Illinois	NELAP	5	200041	10-09-16
lowa	State Program	7	367	07-31-16
Kansas	NELAP	7	E-10253	05-31-16 *
Kentucky (UST)	State Program	4	53	06-30-16
Kentucky (WW)	State Program	4	98030	12-31-16
Louisiana	NELAP	6	30976	06-30-16
Maryland	State Program	3	233	09-30-16
Massachusetts	State Program	1	M-FL094	06-30-16
Michigan	State Program	5	9912	06-30-16
New Jersey	NELAP	2	FL006	06-30-16
North Carolina (WW/SW)	State Program	4	314	12-31-16
Oklahoma	State Program	6	9810	08-31-16
Pennsylvania	NELAP	3	68-00467	01-31-17
Rhode Island	State Program	1	LAO00307	12-30-16
South Carolina	State Program	4	96026	06-30-16
Tennessee	State Program	4	TN02907	06-30-16
Texas	NELAP	6	T104704286-15-9	09-30-16
USDA	Federal		P330-13-00193	07-01-16
Virginia	NELAP	3	460166	06-14-16
West Virginia DEP	State Program	3	136	06-30-16

#### Laboratory: TestAmerica St. Louis

\* Certification renewal pending - certification considered valid.

TestAmerica Savannah

### **Certification Summary**

#### Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M

### Laboratory: TestAmerica St. Louis (Continued)

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	003757	11-30-16

TestAmerica Savannah AND 22/16

#### Client: Solutia Inc. Project/Site: 1Q16 Route 3 Drum Site O&M

TestAmerica Job ID: 680-122104-1 SDG: KOM032

Method	Method Description	Protocol	Laboratory
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL PEN
6010C	Metals (ICP)	SW846	TAL SAV
310.1	Alkalinity	MCAVW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SL
415.1	DOC	MCAWW	TAL SL

#### **Protocol References:**

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

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

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

#### Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

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

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

TestAmerica	Savannah
5102 LaRoche Ave	nue

## **Chain of Custody Record**

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THE LEADER IN ENVIRONMENTAL TESTING

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Client Contact	Project M	anager: An	nanda Derh	nake		Site Contact: Lon Bindner					Date: 02/19 //0				COC No:	S. Diler	56				
Golder Associates Inc	Tel/Fax: 6	36-724-919	91			Lab Contact: Michele Kersey C					Carrier: FedEx					of) CO	Cs				
320 South Main Street		Analysis Turnaround Time								П		Sampler:									
St. Charles, MO 63301	I CAL	ENDAR DAYS	w	ORKING	AYS				375							1			For Lab U	se Only:	
636) 724-9191 Phone	т	AT if different	from Below §	Standard			z		à			0				0.13			Walk-in Cli	ent:	
636) 724-9323 (()\Q FAX	3		2 weeks			z	-	0	fate			5							Lab Sampl	ing:	
Project Name: 2015 Drum Site GW Sampling-1403345			1 week			Σc	5	5	/Su	175		2	11					1		944-14	120120
Site: Solutia WG Krummrich Facility			2 days			-	2	20	0.1	1×	N	F							Job / SDG	No	
P O # 42447936			1 day			E a	82	4 L	N 3	N N	353	Fel	19.1								
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Gnab)	Matrix	# of Cont	Filtered S	SVOCs by	Total Fe/N	Alk/CO2 b Chloride b	Methane t	Nitrate by TOC by 4	Dissolved	DOC by 4						Sar	nple Specific N	otes.
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Possible Hazard Identification:				2000-00 <b>0</b> -00	- 194	s	ampl	e Dis	posa	al (A fe	ee ma	y be	asse	ssed if	fsam	ples a	re ret	tained	l longer tha	n 1 month)	
Are any samples from a listed EPA Hazardous Waste? Please	List any EPA	Waste Co	des for the	sample	in the	- 1															
comments Section II the lab is to dispose of the sample.					- 72	-	_					_							3		
V Non-Hazard Fiammable Skin Imtanc	i Pois	ON B		known				Retu	m to C	lient		L	Dispo	sal by La	ib		Arcr	ING TOP		nonuns	
Special Instructions/QC Requirements & Comments:										~									1	\ -	b
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Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

#### **TestAmerica Savannah**

**Chain of Custody Record** 



TestAmerica

5102 LaRoche Avenue Savannah, GA 31404 Phone (912) 354-7858 Fax (912) 352-0165

Client Information (Sub Contract Lab)	Sampler:	Sampler: Lab P Kers			PM: sey, Michele R					Ci	Carrier Tracking No(s):				COC No: 680-422670.1	
Client Contact: Shipping/Receiving	Phone:			E-M mic	alt hele.ken	sey@	testam	ericainc.	com						Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.					T			Ала	alvsis I	Requ	equested				Job #: 680-122104-1	
Address: 13715 Rider Trail North.	Due Date Requeste 3/9/2016	id:									T	П			Preservation Cod	es:
City: Earth City	TAT Requested (da	iys):													A - HCL B - NaOH	M - Hexane N - None
State, Zip: MO 63045															D - Nitric Acid E - NaHSO4	0 - AsNa02 P - Na204S Q - Na2S03
Phone: 214 208 8556(Tol) 214 208 8757(Eov)	PO#	PO#: WO#: Project #:												4) e. 4	F - MeOH G - Amchlor	R - Na2S2SO3 S - H2SO4
Email:	WO #				or No										H - Ascorbic Acid	T - TSP Dodecahydrate U - Acetone
Project Name:	Project #.				Nation of		D DOC							gineria	K-EDTA L-EDA	W - ph 4-5 Z - other (specify)
Site:	SSOW#:				alami		FLTR							tucup	Other:	
			Comple	Matrix	SM(S)		FIELD							ber o		
		Famala	Type	(W=water, S=solid,	anna a	1/ TOC	Diss							I Num		
Sample Identification - Client ID (Lab ID)	Sample Date	Time	(C=comp, G=grab)	O=waste/oil, BT=Tesse, A=Al	Part	415.	416.1			Ville Are Vie	-			Tota	Special In	structions/Note:
CM 314 0216 (680-122104-1)	2/10/16	09:45	Preserva	Water	Æ		Sec.	A A A A			- 12	C. C.	ar Strange			
GM-31A-F(0 2)-0216 (680-122104-2)	2/19/16	Eastem 09:45		Water	++	Ĥ	x	++	+	$\left  + \right $		$\vdash$	++	0		
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Possible Hazard Identification Unconfirmed					Sa [		Dispos etum To	o Client	e may I	be ass	essea Iosal Bj	ır samı v Lab	bies are i	Archive	e For	_ Months
Deliverable Requested: I, II, III, IV, Other (specify)					Sp	ecial	Instruct	ions/QC	Require	ements	:					
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Client: Solutia Inc.

#### Login Number: 122104 List Number: 1 Creator: Banda, Christy S

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a<br 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	

Job Number: 680-122104-1 SDG Number: KOM032

#### List Source: TestAmerica Savannah

# AND 3/22/16

Client: Solutia Inc.

### Login Number: 122104 List Number: 2

#### Creator: McKinney, Gerrod E

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a<br survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (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	

Job Number: 680-122104-1 SDG Number: KOM032

List Source: TestAmerica St. Louis

List Creation: 02/23/16 10:35 AM

# 19203/22/14

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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