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

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

November 9, 2011

Mr. Kenneth Bardo - LU-9J
U.S. EPA Region V
Corrective Action Section
77 West Jackson Boulevard
Chicago, IL 60604-3507

VIA FEDEX

Re: Route 3 Drum Site Groundwater Monitoring Program
3rd Quarter 2011 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Mr. Bardo:

Enclosed please find the Route 3 Drum Site Groundwater Monitoring Program 3rd Quarter 2011 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@solutia.com

Sincerely,

Gerald M. Rinaldi
Manager, Remediation Services

Enclosure

cc: Distribution List

DISTRIBUTION LIST

Route 3 Drum Site Groundwater Monitoring Program
3rd Quarter 2011 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

USEPA

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

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Booz Allen Hamilton, 8283 Greensboro Drive, McLean, VA 22102

Solutia

Brett Shank 500 Monsanto Avenue, Sauget, IL 62206-1198

3RD QUARTER 2011
DATA REPORT

ILLINOIS ROUTE 3 DRUM SITE GROUNDWATER SAMPLING

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

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

November 2011

URS Corporation
1001 Highland Plaza Drive West, Suite 300
St. Louis, MO 63110
(314) 429-0100
Project # 21562682.00002

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1.0 INTRODUCTION

Solutia Inc. (Solutia) is conducting groundwater monitoring activities as outlined in the Revised Illinois Route 3 Drum Site Operation and Maintenance Plan (Solutia, 2008). The Illinois Route 3 Drum Site (Site) is an area associated with the Solutia W.G. Krummrich (WGK) Facility located in Sauget, Illinois that is subject to a RCRA Administrative Order on Consent (AOC) entered into by the U.S. EPA and Solutia on May 3, 2000. This report presents the results of the sampling event completed in 3rd Quarter 2011 (3Q11). The Site is located in the area identified as "Lot F" in **Figure 1**.

During the 3Q11 sampling event, groundwater samples were collected from two Shallow Hydrogeologic Unit (SHU) monitoring wells, designated GM-31A and GM-58A (**Figure 2**), located hydraulically downgradient of the Site**.** Samples from each well were analyzed for select semivolatile organic compounds (SVOCs) using EPA Method 8270C. In addition, samples were collected from both wells for evaluation of monitored natural attenuation (MNA). The types of natural attenuation processes active at the site will be determined by measurements of the following key geochemical parameters: alkalinity, carbon dioxide, chloride, dissolved oxygen (DO), ferrous iron, total and dissolved iron, total and dissolved manganese, methane, nitrate, sulfate, total and dissolved organic carbon, and oxidation-reduction potential (ORP).

2.0 FIELD PROCEDURES

URS Corporation (URS) personnel collected groundwater level measurements on August 12, 2011 and conducted the 3Q11 Illinois Route 3 Drum Site groundwater sampling on August 22, 2011[1]. Groundwater samples were collected from two monitoring wells during the 3Q11 sampling event. This section summarizes the field investigative procedures.

Groundwater Level Measurements - An oil/water interface probe was used to measure depth to static groundwater levels and determine the presence of non-aqueous phase liquids (NAPL). Depth-to-groundwater measurements for the 3Q11 sampling event are presented in **Table 1**. NAPL was not detected in either of the monitoring wells.

Groundwater Sampling - Low-flow sampling techniques were used for groundwater sample collection. At each monitoring well, disposable, low-density polyethylene tubing was attached to a submersible pump, which was then lowered into the well to the middle of the screened interval. Monitoring wells were purged at a rate no greater than 500 mL/minute to minimize drawdown. If significant drawdown occurred, flow rates were reduced.

[1] The August 12th gauging was part of a comprehensive event which included monitoring wells associated with other WGK programs. Groundwater levels in the subject wells were gauged again on August 22nd prior to sampling.

Drawdown was measured periodically throughout purging to ensure that it did not exceed 25% of the distance between the pump intake and the top of the screen. Once the flow rate and drawdown were stable, field measurements were collected approximately every three to five minutes. Purging of a well was considered complete when the following water quality parameters remained stable over three consecutive flow-through cell volumes:

Parameter	Stabilization Guidelines
Dissolved Oxygen (DO)	+/- 10% or +/-0.2 mg/L, whichever is greatest
Oxidation-Reduction Potential (ORP)	+/- 20 mV
pH	+/- 0.2 units
Specific Conductivity	+/- 3%

Sampling commenced upon completion of purging. Prior to sample collection, the flow-through cell was bypassed to allow for collection of uncompromised groundwater. Samples were collected at a flow rate less than or equal to the rate at which stabilization was achieved. Sample containers were filled based on laboratory analysis to be performed. Bottles were filled in the following order:

- Gas Sensitive Parameters (e.g., carbon dioxide, methane)
- Semivolatile Organic Compounds (SVOCs)
- General Chemistry (i.e., alkalinity, chloride, total and dissolved iron, total and dissolved manganese, nitrate, sulfate, and total and dissolved organic carbon)
- Field Parameters (i.e., dissolved oxygen, ferrous iron, and oxidation reduction potential).

Samples for analysis of ferrous iron, dissolved iron, dissolved organic carbon, and dissolved manganese were filtered in the field using in-line 0.2 micron disposable filters.

Quality Assurance/Quality Control (QA/QC) samples consisting of analytical duplicates (AD) were collected at a rate of 10% and matrix spike/matrix spike duplicates (MS/MSD) were collected at a rate of 5%. One duplicate and one MS/MSD sample were collected.

Each sample was labeled immediately following collection. The groundwater sample identification system included the following nomenclature: “GM-31A-0811” which denotes Groundwater Monitoring well number 31A sampled in August 2011. QA/QC samples are identified by the suffix AD or MS/MSD. A notation of “F” in the sample nomenclature indicates a sample that was filtered in the field with a 0.2 micron filter.

Upon collection and labeling, sample containers were immediately placed inside an iced cooler, packed in such a way as to help prevent breakage and maintain inside temperature at or below approximately 4^{o}C. Field personnel recorded the project identification and number, sample

description/location, required analysis, date and time of sample collection, type and matrix of sample, number of sample containers, analysis requested/comments, and sampler signature/date/time, with permanent ink on the chain-of-custody (COC). Prior to shipment, coolers were sealed between the lid and sides of the cooler with a custody seal, and then shipped to TestAmerica in Savannah, Georgia by means of overnight delivery service. Field sampling data sheets are included in **Appendix A**. COC forms are included in **Appendix B**.

3.0 LABORATORY PROCEDURES

Samples were analyzed by TestAmerica Savannah for the 40 CFR 264 Appendix IX SVOCs, MNA parameters (per the Route 3 Drum Site O&M Plan), using the following methodologies:

- SVOCs, via USEPA SW-846 Method 8270C - The constituents of concern (COCs) identified by the USEPA are 1,1-biphenyl, 2,4-dichlorophenol, dinitrochlorobenzene, nitrobenzene, 2-nitrobiphenyl, 3-nitrobiphenyl, 4-nitrobiphenyl, 2-nitrochlorobenzene, 3-nitrochlorobenzene, 4-nitrochlorobenzene, pentachlorophenol, and 2,4,6-trichlorophenol.
- MNA parameters consisting of alkalinity (310.1), carbon dioxide (310.1), chloride (325.2), total and dissolved iron (6010B), total and dissolved manganese (6010B), dissolved organic carbon (415.1), nitrate (353.2), sulfate (375.4), dissolved gases (RSK 175), and total organic carbon (TOC) (415.1).

Laboratory results were provided in electronic and hard copy formats.

4.0 QUALITY ASSURANCE

Analytical data were reviewed for quality and completeness as described in the Revised Illinois Route 3 Drum Site Operations and Maintenance Plan. Data qualifiers were added, as appropriate, and are included on the data tables and the laboratory report. The Quality Assurance report is included as **Appendix C**. The laboratory report along with data review and validation report are included in **Appendix D**.

A total of five groundwater samples (two investigative groundwater samples, one field duplicate pair, and one MS/MSD pair) were collected. The field duplicate sample, GM-31A-0811-AD arrived at the laboratory but was inadvertently omitted from sample log-in at TestAmerica. All other samples requested for analyses were analyzed by TestAmerica for SVOCs and MNA parameters by USEPA SW-846 Methods. The results for the various analyses were submitted as sample delivery group (SDG) KOM013 containing results for GM-31A and GM-58A.

Evaluation of the analytical data followed procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA 2008), USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (USEPA 2004) and the Revised Illinois Route 3 Drum Site Operation

and Maintenance Plan, (Solutia 2008). Based on the above mentioned criteria, results reported for the analyses performed were accepted for their intended use. Acceptable levels of accuracy and precision, based on MS/MSD, LCS, surrogate and field duplicate data were achieved for this SDG to meet the project objectives. Completeness, which is defined to be the percentage of analytical results which are judged to be valid, including estimated detect/non-detect (**J/UJ**) data, was 100 percent.

5.0 OBSERVATIONS

The 3Q11 sampling event was the thirteenth groundwater sampling event conducted in accordance with the Revised Illinois Route 3 Drum Site Operations and Maintenance Plan. SVOCs were detected in groundwater samples collected from monitoring wells GM-31A and GM-58A during the 3Q11 sampling event. Laboratory analytical data for groundwater sample GM-31A-0811 indicate detections of 2-Nitrobiphenyl, 2,4,6-Trichlorophenol and 2-Chloronitrobenzene/4-Chloronitrobenzene at concentrations of 28 µg/L, 52 µg/L and 47 µg/L, respectively. 2-Chloronitrobenzene/4-Chloronitrobenzene was the only constituent detected in groundwater sample GM-58A-0811, at a concentration of 45 µg/L. A summary of SVOC detections is provided in **Table 2**, with MNA results provided in **Table 3**.

6.0 REFERENCES

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

U.S. Environmental Protection Agency (USEPA), 2004. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.

U.S. Environmental Protection Agency (USEPA), 2008 National Functional Guidelines for Superfund Organic Methods Data Review.

Figures

FALLING SPRINGS ROAD

STERLING STEEL

SITE H

SITE L

SITE M

SITE N

SITE I

DEAD CREEK

SITE G

CONTAINMENT CELL

CERRO COPPER

QUEENY AVENUE

ROUTE 3

W. G. KRUMMRICH FACILITY

AFTON CHEMICAL

MONSANTO AVENUE

BIG RIVER ZINC

ROUTE 3

MIDWEST RUBBER

CENTER ETHANOL COMPANY, LLC

LOT F

SITE O

PHILLIPS PETROLEUM

SITE P

UNION ELECTRIC

PCHEM POTW

AMERICAN BOTTOMS POTW

CLAYTON CHEMICAL

SITE S

VEOLIA INCINERATION

KINDER MORGAN

SITE R

SITE Q

GROUNDWATER PUMPING WELLS

BARRIER WALL

MISSISSIPPI RIVER

LEGEND

- W.G. KRUMMRICH FACILITY
- SAUGET AREA #1
- SAUGET AREA #2

Ø 1ØØØ

SCALE FEET

ILLINOIS ROUTE 3 DRUM SITE GROUNDWATER SAMPLING
3RD QUARTER 2Ø11 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO. 21562682

URS

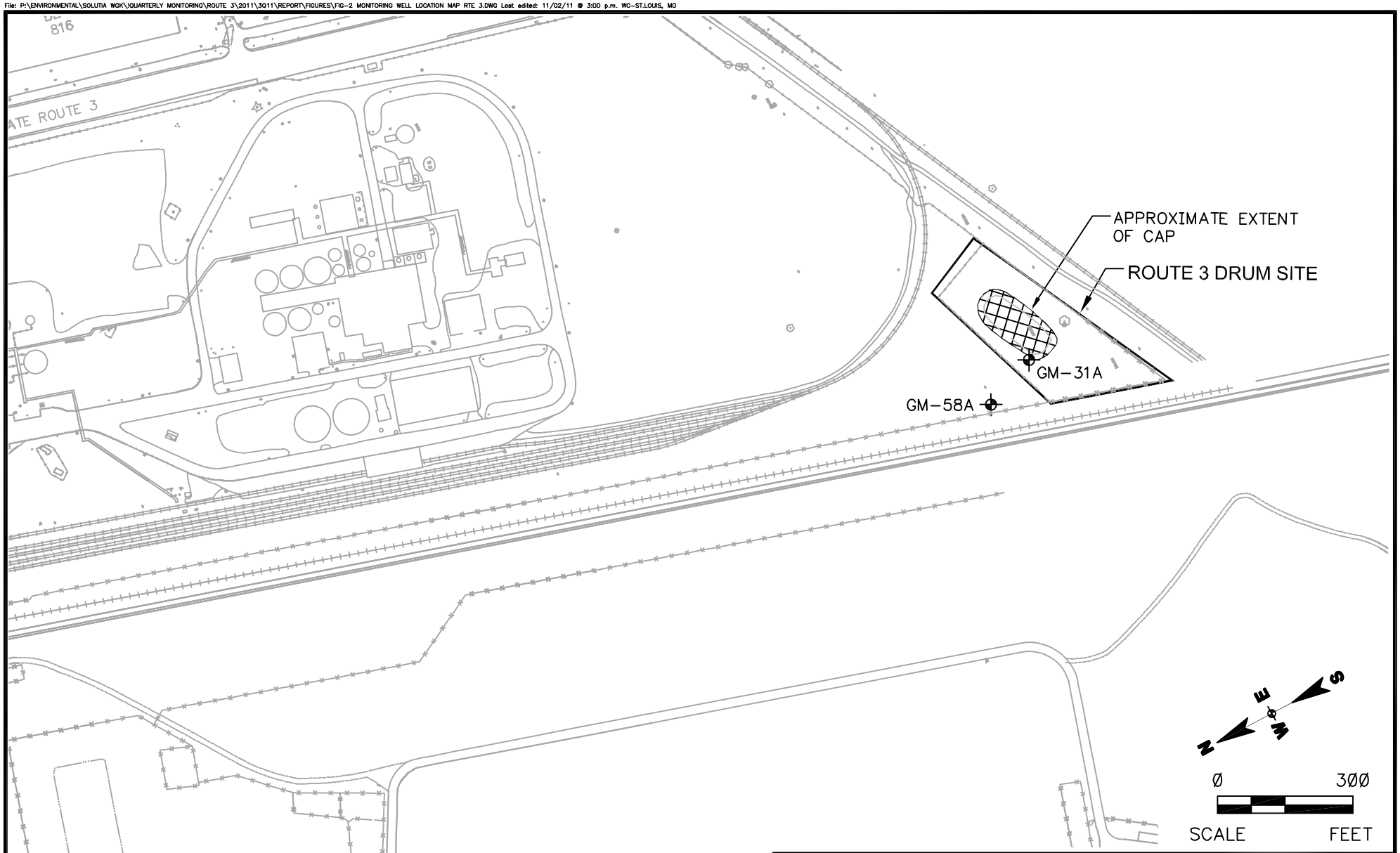
DRN. BY:dab October 2Ø11
DSGN. BY:wh
CHKD. BY:

Site Location Map

FIG. NO. 1

File: P:\ENVIRONMENTAL\SGLUTIA WGK\QUARTERLY MONITORING\ROUTE 3\2011\3Q11\REPORT\FIGURES\FIG-1 SITE LOCATION MAP RTE 3.DWG Last edited: NOV. 02, 11 @ 3:05 p.m. by: david_deguire

File: P:\ENVIRONMENTAL\SOLUTIA WGK\QUARTERLY MONITORING\ROUTE 3\2011\3Q11\REPORT\FIGURES\FIG-2 MONITORING WELL LOCATION MAP RTE 3.DWG Last edited: 11/02/11 @ 3:00 p.m. WC-ST.LOUIS, MO



LEGEND

⊕ MONITORING WELL LOCATION

ILLINOIS ROUTE 3 DRUM SITE GROUNDWATER SAMPLING 3RD QUARTER 2Ø11 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO. 21562682
URS		
DRN. BY:chs October 2Ø11 DSGN. BY: ekf CHKD. BY:	Monitoring Well Location Map	FIG. NO. 2

Tables

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						August 12, 2011		
	Ground Elevation* (feet)	Top of Casing Elevation* (feet)	Depth to Top of Screen (feet bgs)	Depth to Bottom of Screen (feet bgs)	Top of Screen Elevation* (feet)	Bottom of Screen Elevation* (feet)	Depth to Water (feet btoc)	Depth to Bottom (feet btoc)	Water Elevation* (feet)
Shallow Hydrogeologic Unit (SHU 395 - 380 ft NAVD 88)									
GM-31A	416.63	418.63	19.00	39.00	397.63	377.63	14.65	40.26	403.98
GM-58A	412.24	414.24	19.40	39.40	392.84	372.84	10.40	40.87	403.84

Notes:
* - Elevation based upon North American Vertical Datum (NAVD) 88 datum
bgs - below ground surface
btoc - below top of casing

Table 2
Groundwater Analytical Results

Sample ID	Sample Date	1,1-Biphenyl (ug/L)	1-Chloro-2,4-Dinitrobenzene (ug/L)	2,4,6-Trichlorophenol (ug/L)	2,4-Dichlorophenol (ug/L)	2-Chloronitrobenzene/ 4-Chloronitrobenzene (ug/L)	2-Nitrobiphenyl (ug/L)	3-Nitrobiphenyl (ug/L)	3,4-Dichloronitrobenzene (ug/L)	3-Nitrochlorobenzene (ug/L)	4-Nitrobiphenyl (ug/L)	Nitrobenzene (ug/L)	Pentachlorophenol (ug/L)
Shallow Hydrogeologic Unit (SHU 395 - 380 ft NAVD 88)													
GM-31A-0811	8/22/2011	<10	<10	**52**	<10	**47**	**28**	<10	<10	<10	<10	<10	<50
GM-58A-0811	8/22/2011	<10	<10	<10	<10	**45**	<10	<10	<10	<10	<10	<10	<50

Notes:
µg/L = micrograms per liter
< = Result is non-detect, less than the reporting limit given - indicated as a U qualifier on lab data
BOLD indicates concentration greater than the reporting limit

Table 3
Monitored Natural Attenuation Results Summary

Sample ID	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 (µg/L)	Nitrogen, Nitrate (mg/L)	Sulfate as SO4 (mg/L)	Dissolved Organic Carbon (mg/L)	Total Organic Carbon (mg/L)	ORP (mV)
Shallow Hydrogeologic Unit (SHU 395 - 380 ft NAVD 88)																		
GM-31A-0811	8/22/2011	470	43	18	0.05	<1.1	<1		7.4		1		1.7	4.4	88		3.6	-209.0
GM-31A-F(0.2)-0811-AD	8/22/2011							0.00		<0.05		1				3.5		
GM-58A-0811	8/22/2011	470	40	41	0.09	<1.1	<1		1.1		1.4		0.79	<0.05	93		3.5	-207.0
GM-58A-F(0.2)-0811	8/22/2011							0.74		0.79		1.4				3.4		

Notes:
DO and ORP were measured in the field using a YSI 6920 equipped with a flow-through cell.
Ferrous Iron readings were measured in the field using a colorimeter after the groundwater passed through a 0.2 µm filter.
mg/L = milligrams per liter
µg/L = micrograms per liter
< = Result is non-detect, less than the reporting limit given - indicated as a U qualifier on lab data
A blank space indicates sample not analyzed for select analyte.
F(0.2) = Sample was filtered utilizing a 0.2 µm filter in the field.
mV = milivolts

Appendix A

Groundwater Purging and Sampling Forms

In-Situ Inc.

Troll 9000 | Low-Flow System
08/22/11 | ISI Low-Flow Log

Project Information:

Operator Name	N MCNURLEN
Company Name	URS
Project Name	SOLUTIA
Site Name	3Q11 GW

Pump Information:

Pump Model/Type	SS MONSOON
Tubing Type	LDPE
Tubing Diameter	0.19 [in]
Tubing Length	44.32 [ft]
Pump placement from TOC	38.32 [ft]

Well Information:

Well Id	GM-31A
Well diameter	2 [in]
Well total depth	40.82 [ft]
Depth to top of screen	
Screen length	
Depth to Water	15.58 [ft]

Pumping information:

Final pumping rate	400 [mL/min]
Flowcell volume	847.1 [mL]
Calculated Sample Rate	128 [sec]
Sample rate	128 [sec]
Stabilized drawdown	

Low-Flow Sampling Stabilization Summary

	Time	Temp [F]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-20 +/-3 %	+/-1 +/-10 %	+/-0.2 +/-10 %	+/-20
Last 5 Readings	12:02:41	62.99	6.65	1090.31	214.93	0.11	-159.23
	12:04:54	62.59	6.66	1092.93	182.64	0.08	-181.32
	12:07:07	62.62	6.67	1091.46	194.08	0.07	-194.91
	12:09:18	62.53	6.68	1080.09	207.81	0.07	-201.87
	12:11:31	62.40	6.68	1080.75	159.51	0.05	-209.10
Variance in last 3 readings	12:07:07	0.03	0.01	-1.46	11.44	-0.01	-13.59
	12:09:18	-0.10	0.00	-11.38	13.72	0.00	-6.96
	12:11:31	-0.13	0.01	0.66	-48.30	-0.02	-7.22

Notes:

In-Situ Inc.

Troll 9000 | Low-Flow System
08/22/11 | ISI Low-Flow Log

Project Information:

Operator Name	N MCNURLEN
Company Name	URS
Project Name	SOLUTIA
Site Name	3Q11 GW

Pump Information:

Pump Model/Type	SS MONSOON
Tubing Type	LDPE
Tubing Diameter	0.19 [in]
Tubing Length	50.58 [ft]
Pump placement from TOC	38.38 [ft]

Well Information:

Well Id	GM-58A
Well diameter	2 [in]
Well total depth	40.88 [ft]
Depth to top of screen	
Screen length	
Depth to Water	11.3 [ft]

Pumping information:

Final pumping rate	500 [mL/min]
Flowcell volume	882.01 [mL]
Calculated Sample Rate	106 [sec]
Sample rate	150 [sec]
Stabilized drawdown	0.02 [ft]

Low-Flow Sampling Stabilization Summary

	Time	Temp [F]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-20 +/-3 %	+/-1 +/-10 %	+/-0.2 +/-10 %	+/-20
	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00
	13:58:32	62.32	6.83	1053.89	33.24	0.14	-191.35
Last 5 Readings	14:01:07	62.30	6.83	1055.65	63.64	0.13	-199.27
	14:03:43	62.03	6.83	1060.87	120.39	0.08	-205.21
	14:06:19	62.17	6.83	1066.26	6.65	0.09	-206.93
	14:01:07	-0.03	0.00	1.76	30.40	-0.01	-7.91
Variance in last 3 readings	14:03:43	-0.27	0.00	5.22	56.75	-0.04	-5.95
	14:06:19	0.15	0.00	5.39	-113.74	0.01	-1.71

Notes:

Appendix B

Chain-of-Custody

Savannah
5102 LaRoche Avenue
Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Dave Palmer	Site Contact: Nathan McNurlen	Date: 8/22/11	COC No:
URS Corporation	Tel/Fax: (314) 743-4154	Lab Contact: Lidya Gulizia	Carrier:	1 of 1 COCs
1001 Highlands Plaza Drive West, Suite 300	Analysis Turnaround Time			Job No. 21562682.00001 680-71633
St. Louis, MO 63110	Calendar (C) or Work Days (W)			SDG No.
(314) 429-0100 Phone	TAT if different from Below C			
(314) 429-0462 FAX	☒ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			
Project Name: 3Q11 Route 3 GW Sampling				
Site: Solutia WG Krummrich Facility				
P O #				

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	SVOCs by 8270C*	Total Fe/Mn by 6010B	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Methane by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010B	DOC by 415.1	Sample Specific Notes:
GM-31A-0811	8/22/11	1315	G	Water	11		2	1	1	1	3	2	1			
GM-31A-0811-AD	8/22/11	1315	G	Water	2		2									
GM-31A-F(0.2)-0811	8/22/11	1315	G	Water	2	X								1	1	
GM-58A-0811	8/22/11	1510	G	Water	11		2	1	1	1	3	2	1			
GM-58A-0811-MS	8/22/11	1510	G	Water	2		2									
GM-58A-0811-MSD	8/22/11	1510	G	Water	2		2									
GM-58A-F(0.2)-0811	8/22/11	1510	G	Water	2	X								1	1	
TB-4	8/22/11	0000	—	W	2						2					As necessary
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other							1	4	1	1	1	3,1	2	4	2	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments: Level 4 Data Package

Temp 0.1°C / 0.8°C

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	URS	8/22/11 1715		TA	8/22/11 1715
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
			Beth A Daughtry	TA SAV	08.23.11 0946
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Appendix C

Quality Assurance Report

QUALITY ASSURANCE REPORT

Solutia Inc.
W.G. Krummrich Facility
Sauget, Illinois

Illinois Route 3 Drum Site
3rd Quarter 2011 Data Report

Prepared for

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

November 2011

URS Corporation
1001 Highland Plaza Drive West, Suite 300
St. Louis, MO 63110
(314) 429-0100
Project # 21562682.00002

1.0 INTRODUCTION

This Quality Assurance Report presents the findings of a review of analytical data for groundwater samples collected in August 2011 at the Illinois Route 3 Drum Site on the Solutia W.G. Krummrich Facility as part of the 3rd Quarter 2011 sampling event. The samples were collected by URS Corporation personnel and analyzed by TestAmerica Laboratories located in Savannah, Georgia using USEPA methodologies. Samples were analyzed for certain semivolatile organic compounds (SVOCs), monitored natural attenuation (MNA) parameters, and metals.

One hundred percent of the data were subjected to a data quality review (Level III validation); ten percent of these data were subjected to a full data validation (Level IV validation). Please see **Appendix D** for the three validation reports (Full Validation of SVOC Data – SDG KOM013, Full Validation of Metals Data – SDG KOM013, and Full Validation of Wet Chemistry Data – SDG KOM013). The Level III and IV validations were performed in order to confirm that the analytical data provided by TestAmerica were acceptable in quality for their intended use. A total of five samples (two investigative groundwater samples, one field duplicate, and one matrix spike and matrix spike duplicate (MS/MSD) pair) were collected. The field duplicate sample, GM-31A-0811-AD arrived at the laboratory but was inadvertently omitted from sample log-in at TestAmerica. All other samples requested for analyses were analyzed by TestAmerica for SVOCs and MNAs by the following USEPA SW-846 Methods:

USEPA SW-846 Method 8270C for SVOCs

Samples were also analyzed for MNA parameters by the following methods:

- Method RSK-175 for Dissolved Gases (Ethane, Ethylene, and Methane)
- USEPA Method 310.1 for Alkalinity and Carbon Dioxide
- USEPA Method 325.2 for Chloride
- USEPA Method 6010B for Total and Dissolved Iron and Manganese
- USEPA Method 415.1 for Total and Dissolved Organic Carbon
- USEPA Method 353.2 for Nitrogen, Nitrate
- USEPA Method 375.4 for Sulfate

Samples were reviewed following procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA 2008) and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (USEPA 2004).

The above guidelines provided the criteria to review the data. Additional quantitative criteria are given in the analytical methods. Qualifiers assigned by the data reviewer have been applied to the laboratory report. The qualifiers indicate data that did not meet acceptance criteria and corrective actions were not successful or not performed.

The various qualifiers are explained in **Tables 1** and **2** below:

TABLE 1 Laboratory Data Qualifiers

Lab Qualifier	Definition
U	Indicates the analyte was analyzed for but not detected.
*	LCS, LCSD, MS, MSD, MD or surrogate exceeds the control limits.
E	Result exceeded the calibration range, secondary dilution required.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
N	MS, MSD: Spike recovery exceeds upper or lower control limits.
H	Sample was prepped or analyzed beyond the specified holding time.
B	Compound was found in the blank and sample.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

TABLE 2 URS Data Qualifiers

URS Qualifier	Definition
U	The analyte was analyzed for but was not detected.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Based on the criteria outlined, it is recommended that the results reported for these analyses are accepted for their intended use. Acceptable levels of accuracy, precision, and representativeness (based on MS/MSD, LCS, surrogate compounds and field duplicate results) were achieved for this data set, except where noted in this report. In addition, analytical completeness, defined to be the percentage of analytical results which are judged to be valid, including estimated detect/non-detect (**J/UJ**) values was 100 percent, which meets the completeness goal of 95 percent.

The data review included evaluation of the following criteria:

Organics

- Receipt condition and sample holding times
- Laboratory method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) sample recoveries and Relative Percent Difference (RPD) values
- Field duplicate results
- Results reported from dilutions
- Internal standard responses

Inorganics/General chemistry

- Receipt condition and sample holding times
- Laboratory method blank
- LCS recoveries
- MS/MSD sample recoveries and matrix duplicate RPD values
- Field duplicate and laboratory duplicate results
- Results reported from dilutions

2.0 RECEIPT CONDITION AND SAMPLE HOLDING TIMES

Sample holding time requirements for the analyses performed are presented in the methods and/or in the data review guidelines. Review of the sample collection, extraction and analysis dates involved comparing the chain-of-custody and the laboratory data summary forms for accuracy, consistency, and holding time compliance.

Extractions and/or analyses were completed within the recommended holding time requirements.

The cooler receipt form indicated that the coolers were received by the laboratory at 0.1°C and 0.8°C, which were outside the 4°C ± 2°C criteria. The samples were received in good condition; therefore no qualification of data was required. The TOC container for sample GM-31A was received without any sample volume. The remaining semivolatiles container contained sufficient sample to complete the TOC analysis.

3.0 LABORATORY METHOD BLANK

Laboratory method blank samples evaluate the existence and magnitude of contamination problems resulting from laboratory activities. Laboratory method blank samples were analyzed at the method prescribed frequencies. The method blank sample was non-detect for all target analytes.

4.0 SURROGATE SPIKE RECOVERIES

Surrogate compounds are used to evaluate overall laboratory performance for sample preparation efficiency on a per sample basis. All samples analyzed for SVOCs were spiked with surrogate compounds during sample preparation. USEPA National Functional Guidelines for Superfund Organic Methods Data Review state how data is qualified, if surrogate spike recoveries do not meet evaluation criteria.

Surrogate recoveries were within evaluation criteria. Surrogates that were associated with quality control samples did not require qualification. In addition, no qualification of data was required if only one SVOC acid or base fraction surrogate was outside evaluation criteria. The USEPA National Functional Guidelines for Superfund Organic Methods Data Review indicates to qualify data if two or more surrogates per SVOC fraction are outside criteria. No qualifications of data were required due to surrogate recoveries.

5.0 LABORATORY CONTROL SAMPLE RECOVERIES

Laboratory control samples (LCS) are analyzed with each analytical batch to assess the accuracy of the analytical process. All spiked LCS recoveries were within evaluation criteria.

6.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) SAMPLES

MS/MSD samples are analyzed to assess the accuracy and precision of the analytical process on an analytical sample in a particular matrix. MS/MSD samples were to be collected at a frequency of one per 20 investigative samples in accordance with the work plan. URS Corporation submitted one MS/MSD sample set for two investigative samples, meeting the work plan frequency requirement.

Sample GM-58A-0811 was spiked and analyzed for SVOCs. Although not requested for MS/MSD analysis, sample GM-31A-F(0.2)-0811 was spiked and analyzed for dissolved organic carbon. All MS/MSD recoveries were within evaluation criteria. No qualification of data was required.

7.0 FIELD DUPLICATE RESULTS

Field duplicate results are used to evaluate precision of the entire data collection activity, including sampling, analysis and site heterogeneity. When results for both duplicate and sample values are

greater than five times the practical quantitation limit (PQL), satisfactory precision is indicated by an RPD less than or equal to 25 percent for aqueous samples. Where one or both of the results of a field duplicate pair are reported at less than five times the PQL, satisfactory precision is indicated if the field duplicate results agree within 2 times the quantitation limit. Field duplicate results that do not meet these criteria may indicate unsatisfactory precision of the results.

One field duplicate sample was collected for the two investigative samples. This satisfies the requirement in the work plan (one per 10 investigative samples or 10 percent). Field duplicate sample, GM-31A-0811-AD arrived at the laboratory but was inadvertently omitted from sample log-in at TestAmerica. In the absence of the analysis of a field duplicate, laboratory precision is supported by the laboratory duplicating and analyzing sample GM-58A-0811. No qualification of the data was required.

8.0 INTERNAL STANDARD RESPONSES

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during each analytical run. IS areas must be within -50 percent to +100 percent for SVOCs. Also, the IS retention times must be within 30 seconds of the preceding IS CV retention time.

The internal standards area responses for the SVOCs were verified for the data reviews. IS responses met the criteria. No qualification of the data was required.

9.0 RESULTS REPORTED FROM DILUTIONS

The samples were diluted (5x) for the analysis of sulfate and/or nitrate. The diluted sample results for sulfate and nitrate were reported at the lowest possible reporting limit.

Appendix D

Groundwater Analytical Results
(with Data Review/Validation Reports)

Solutia Krummrich Data Review
WGK Route 3 Drum Site O&M 3Q11

Laboratory SDG: KOM013

Data Reviewer: Melissa Mansker

Peer Reviewer: Elizabeth Kunkel

Date Reviewed: 10/03/2011

Guidance: USEPA National Functional Guidelines for Superfund Organic Methods Data Review 2008.

USEPA National Functional Guidelines for Inorganic Data Review 2004

Applicable Work Plan: Revised Illinois Route 3 Drum Site Operation and Maintenance Plan (Solutia 2008)

Sample Identification	
GM-31A-0811	GM-31A-F(0.2)-0811
GM-58A-0811	GM-58A-F(0.2)-0811
TB-4	

1.0 Data Package Completeness

Were all items delivered as specified in the QAPP and COC as appropriate?

No, the field duplicate sample, GM-31A-0811-AD arrived at the laboratory but was inadvertently omitted from sample log-in at TestAmerica. Laboratory precision was supported by the laboratory duplicating and analyzing sample GM-58A-0811. All other samples requested for analyses were analyzed by TestAmerica for SVOCs and MNA parameters by USEPA SW-846 Methods.

2.0 Laboratory Case Narrative \ Cooler Receipt Form

Were problems noted in the laboratory case narrative or cooler receipt form?

Yes, samples were diluted due to high levels of nitrate and sulfate. These issues are addressed further in the appropriate sections below.

The cooler receipt form indicated that two of two coolers were received by the laboratory at 0.1°C and 0.8°C, which are outside the 4°C ± 2°C criteria. The samples were received in good condition; therefore no qualification of data was required. The TOC container for sample GM-31A was received without any sample volume. The remaining semi-volatiles container contained sufficient sample to complete the TOC analysis.

3.0 Holding Times

Were samples extracted/analyzed within applicable limits?

Yes

4.0 Blank Contamination

Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?

No

5.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

Yes

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

Yes

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

Were MS/MSD samples collected as part of this SDG?

Yes, sample GM-58A-0811 was spiked and analyzed for SVOCs. Although not requested for MS/MSD analysis, sample GM-31A-F(0.2)-0811 was spiked and analyzed for dissolved organic carbon.

Were MS/MSD recoveries within evaluation criteria?

Yes

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

Yes

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples performed as part of this SDG?

Yes, sample GM-58A-0811 was duplicated and analyzed for alkalinity and free carbon dioxide.

Were laboratory duplicate sample RPDs within criteria?

Yes

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

Yes

Field ID	Field Duplicate ID
GM-31A-0811	GM-31A-0811-AD

Were field duplicate sample RPDs within evaluation criteria?

Field duplicate sample, GM-31A-0811-AD arrived at the laboratory but was inadvertently omitted from sample log-in at TestAmerica. In the absence of the analysis of a field duplicate, laboratory precision is supported by the laboratory duplicating and analyzing sample GM-58A-0811.

11.0 Sample Dilutions

For samples that were diluted and nondetect, were undiluted results also reported?

Not applicable; analytes were detected in samples that were diluted.

12.0 Additional Qualifications

Were additional qualifications applied?

No

FULL VALIDATION OF SVOC DATA – SDG KOM013

This section describes the full validation for two water samples which were prepared by USEPA SW-846 Method 3520C and analyzed for semivolatile organic compounds (SVOCs) by USEPA SW-846 Method 8270C. Samples were analyzed by TestAmerica Laboratory of Savanna, Georgia, and submitted as part of sample delivery group (SDG) KOM013. Samples included as part of this validation are listed below:

Sample Identification	
GM-31A-0811	GM-58A-0811

Criteria were identified in the Revised Illinois Route 3 Drum Site Operation and Maintenance Plan (Solutia 2008) and USEPA SW-846 Method 8270C. Evaluation of the analytical data followed procedures outlined in the USEPA Contract Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA 2008) where applicable to SW-846 Method 8270C.

Criteria evaluated included the following method performance criteria:

- Data package completeness
- Laboratory case narrative/cooler receipt form
- Holding times and sample preservation
- Instrument performance
- Initial calibration
- Calibration verification
- Blank samples
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) samples
- Internal standard areas
- Laboratory control sample (LCS)
- Target compound identification and quantitation
- Overall data assessment

1.0 Data Package Completeness

The data package was reviewed to make certain that it contained the data contractually required in the deliverable. This included checking the data package for the results of each analyte requested for each field sample submitted in the analytical batch, along with requested QC documentation for the respective methods. Field duplicate sample, GM-31A-0811-AD arrived at the laboratory but was inadvertently omitted from sample log-in at TestAmerica. Laboratory precision was supported by the laboratory duplicating and analyzing sample GM-58A-0811. All other samples requested for analyses were analyzed by TestAmerica for SVOCs and MNA parameters by USEPA SW-846 Methods.

1.2 Laboratory Case Narrative/Cooler Receipt Form

No problems were indicated in the laboratory case narrative for the validated samples.

The cooler receipt form indicated samples in two of two coolers were received by the laboratory at 0.1°C and 0.8°C which is outside the 4°C ± 2°C criteria. The samples were received in good condition; therefore, no qualification of data was required.

1.3 Sample Preservation and Holding Times

Review of the sample collection and analysis dates involved comparing the chain-of-custody, the summary forms, the raw data forms, and the chromatograms for accuracy, consistency, and holding time compliance. The samples were extracted within 7 days of collection and analyzed within 40 days of extraction. No qualification of data was required due to sample preservation or holding time criteria.

1.4 Instrument Performance

GC/MS instrument performance checks were performed to ensure mass resolution, identification, and instrument sensitivity. Criteria for evaluation of instrument performance included possible transcription/calculation errors, adherence to instrument tuning frequency requirements, mass assignments, and ion abundance criteria. Instrument performance check samples were evaluated against the laboratory tuning criteria established in Method 8270C.

Based on the raw data, the ion abundance criteria were within evaluation criteria for all masses, therefore; no qualification of the data was required. The raw data forms were checked against the summary forms and no calculation or transcription errors were noted.

1.5 Initial Calibration

An Initial calibration (ICAL) was established to assess whether the instrument was capable of producing acceptable qualitative and quantitative data for volatile analysis. Samples as part of SDG KOM013 were analyzed using instrument MSG5973.i. The ICAL for instrument MSG was established on 08/12/2011 prior to sample analysis and using at least five concentration standards to establish the initial calibration curve as required by Method 8270C. An average response factor (RF) was determined for each target analyte, and the RFs were reviewed and verified as greater than 0.05 for all target analytes.

Review of the initial calibration summary forms indicated calibration check compounds (CCCs) had percent relative standard deviations (%RSDs) $\leq$ 30%. All other target analytes had %RSDs less than 15%.

Recalculations of the RFs and %RSD for one compound per internal standard were performed, and no errors in calculation were noted.

1.6 Calibration Verification

Review of sample chromatograms indicated the calibration verifications (CVs) were performed at the required frequency of every 12 hours. Review of continuing calibration summary forms indicated all RFs met the evaluation criteria of greater than 0.05 for all target analytes. In addition, percent differences (%Ds) met the evaluation criteria of less than or equal to 20% for CCCs and target analytes that were quantitated using linear calibration (response factor).

Recalculations of the RFs and %RSD for one compound per internal standard were performed, and no errors in calculation were noted.

1.7 Blank Samples

The purpose of method blank samples is to evaluate the existence and magnitude of contamination problems emanating from laboratory activities. Method blank samples were analyzed with each analytical batch as required by USEPA SW-846 Method 8270C. All target compounds in the blank samples were reported as non-detect. No qualification of data was required.

1.8 Surrogate Spike Recoveries

Surrogate compounds were used to evaluate the overall laboratory sample preparation efficiency on a per-sample basis. Surrogate recoveries were within the method acceptance criteria for all validated samples.

A minimum of 10% of the surrogate recoveries was recalculated, and the summary forms versus the raw data were verified. No calculation or transcription errors were noted.

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

MS/MSD samples are analyzed to assess potential matrix effects. Sample GM-58A-0811 was spiked and analyzed for SVOCs. All MS/MSD recoveries were within the method acceptance criteria for sample GM-58A-0811.

1.10 Internal Standard Areas and Retention Times

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during each analytical run. Following Method 8270C, the IS areas for the samples and CVs must be within –50% to +100% and retention times must be within 30 seconds of the IS area and retention time of the midpoint of the ICAL.

The IS areas for the CVs and the validated samples in this SDG were within evaluation criteria. No qualifications to the data based on IS areas or retention times were required.

1.11 Laboratory Control Sample (LCS)

Laboratory control samples were analyzed with each analytical batch to assess the accuracy of the analytical process. LCS recoveries were within evaluation criteria. No qualifications of data were required based on LCS recoveries.

A minimum of 10% of the spiking compound recoveries for the LCS were recalculated from the raw data and verified using the LCS summary forms, and no calculation or transcription errors were noted.

1.12 Target Compound Identification and Quantitation

For validation of the compound identification, chromatograms were reviewed to verify the major peaks were identified, the spectra of the identified compounds were verified against the library spectra, and the relative retention time was no greater than 0.06 different from the associated CV retention times. A minimum of 10% of the detected target analytes and spiking compounds were verified. No anomalies were noted with the identification of the target compounds in the samples.

For the validation of compound quantitation, 10% of the target analytes were recalculated from the raw data, and no calculation errors were noted. Additionally, the reporting limits were

verified to determine if reporting limits (RLs) were adjusted for dilutions. No qualification of the data was required and review of the data indicated the correct RLs were reported.

1.13 Overall Data Assessment

Based on the criteria outlined, it is recommended that the results reported for these analyses are accepted for their intended use. Acceptable levels of accuracy and precision, based on LCS, MS/MSD and surrogate data were achieved for this SDG. In addition, completeness defined to be the percentage of analytical results, which are judged as valid, including estimated detect/non-detect **(J/UJ**) data was 100% for this SDG.

FULL VALIDATION OF METALS DATA – SDG KOM013

This section describes the full data validation for four water samples which were prepared by USEPA SW-846 Methods 3005A and analyzed for total and dissolved iron and manganese by USEPA SW-846 Method 6010B. Samples were analyzed by TestAmerica Laboratory of Savanna, Georgia, and submitted as part of sample delivery group (SDG) KOM013. Samples included as part of this validation are listed below.

Sample Identification	
GM-31A-0811	GM-58A-0811
GM-31A-F(0.2)-0811	GM-58A-F(0.2)-0811

Criteria were identified in the Revised Illinois Route 3 Drum Site Operation and Maintenance Plan (Solutia 2008) and USEPA SW-846 Method 6010B. Evaluation of the analytical data followed procedures outlined in the USEPA Contract Program National Functional Guidelines for Inorganic Data Review (USEPA 2004) where applicable to SW-846 Method 6010B.

Criteria evaluated included the following method performance criteria:

- Data package completeness
- Laboratory case narrative /cooler receipt form
- Sample preservation and holding times
- Blank contamination
- Initial calibration
- Calibration verification
- Laboratory control sample (LCS)
- Matrix spike/matrix spike duplicate (MS/MSD)
- Laboratory duplicate sample
- ICP serial dilution
- ICP interference check samples (ICS)
- Sample result verification
- Overall assessment of data

1.1 Data Package Completeness

The data package was reviewed to make certain that it contained the data contractually required in the deliverable. This included checking the data package for the results of each analyte requested for each field sample submitted in the analytical batch, along with requested QC documentation for the respective methods. The data package was complete for metals analysis for this SDG.

1.2 Laboratory Case Narrative / Cooler Receipt Form

No problems were indicated in the laboratory case narrative for the validated samples.

The cooler receipt form indicated samples in two of two coolers were received by the laboratory at 0.1^{o}C and 0.8^{o}C which is outside the 4^{o}C ± 2^{o}C criteria. The samples were received in good condition; therefore, no qualification of data was required.

1.3 Sample Preservation and Holding Times

Review of the sample collection and analysis dates involved comparing the chain-of-custody, the sample preparation logs, the analysis run logs, and raw data forms for holding time compliance. The samples were received at a pH<2 and were analyzed within the evaluation criteria of 6 months for metals. No qualification of data was required based on holding time criteria or sample preservation.

1.4 Blank Contamination

The purpose of blank samples was to evaluate the existence and magnitude of contamination problems emanating from laboratory activities. Initial calibration, continuing calibration, and preparation blanks were reported non-detect for all metals analyzed. No qualification of data was required based on blank results.

1.5 Initial Calibration

Initial calibration (ICAL) criteria were established to assess whether the instrument was capable of producing acceptable qualitative and quantitative data for metals analyses. An ICAL was analyzed at the beginning of the run sequence. ICAL curves were established using a blank and three standards for analysis of metals by inductively coupled plasma atomic emission (ICP-AE). All initial calibration verification (ICV) recoveries were within evaluation criteria (ICP metals, 90-110%). A minimum of 10% of the ICAL curve and ICV recoveries were recalculated and compared to the raw data; no calculation or transcription errors were noted. No qualification of the data was required based on ICV data.

1.6 Calibration Verification

Calibration Verification (CV) criteria were established to assess whether the instrument was capable of producing acceptable qualitative and quantitative data established by the ICAL. The laboratory analyzed CV samples at a frequency of 10% as specified by the methodologies. CV samples associated with the validated samples had recoveries within the evaluation criteria (ICP metals, 90-110%). A minimum of 10% of the CV sample recoveries were recalculated and compared to the raw data and no calculation or transcription errors were noted.

1.7 Laboratory Control Sample (LCS)

Laboratory control spike (LCS) samples were analyzed to assess the accuracy of the analytical method and to demonstrate laboratory performance. The LCS recoveries for metals were within evaluation criteria (75-125%) for metals. A minimum of 10% of the LCS recoveries were recalculated and compared to the raw data; no calculation or transcription errors were noted. No qualification of data was required based on LCS recoveries.

1.8 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD samples are analyzed to assess accuracy, precision and the effects of matrix interference during the analysis of a particular sample. No metal MS/MSDs were analyzed for the samples chosen for validation.

1.9 Laboratory Duplicate Sample

Laboratory duplicate samples are analyzed to assess the precision of a particular sample. No laboratory duplicates were analyzed for the samples chosen for validation.

1.10 ICP Serial Dilution

Serial dilutions are analyzed to assess the potential significant physical or chemical interferences due to sample matrix. A metals serial dilution was not analyzed for the samples chosen for validation.

1.11 ICP Interference Check Sample

An Interference Check Sample (ICS) was analyzed to verify the contract laboratory's interelement and background correction factors for analysis of metals by ICP. The laboratory analyzed the ICS at the beginning of the analytical run as specified in USEPA SW-846 Method 6010B. The ICS recoveries for all metals analyzed were within evaluation criteria (80-120%); therefore, no qualification of the ICP data was required. A minimum of 10% of the ICS recoveries were recalculated and compared to the raw data; no transcription and calculation errors were noted.

1.12 Sample Result Verification

The metals results were recalculated to validate that analyte quantitation was derived accurately, and no calculation errors were noted. Data summary forms were reviewed and compared to the raw data package. No transcription errors were noted and the correct reporting limits were used.

1.13 Overall Data Assessment

Based on the criteria outlined, it is recommended that the results reported for these analyses are accepted for their intended use. Completeness, defined to be the percentage of analytical results that are judged to be valid, including estimated detect/non-detect (**J/UJ**) data, was 100% for this SDG.

FULL VALIDATION OF GENERAL CHEMISTRY DATA – SDG KOM013

This section describes the full data validation of four water samples which were analyzed for various general chemistry parameters. The analytical parameters and methodologies are summarized below:

Parameter	Method	Reference
Nitrate/Nitrite	353.2	USEPA Methods for Chemical Analysis of Water and Waste (USEPA, 1983)
Sulfate	375.4	
Total and Dissolved Organic Carbon	415.1	
Chloride	325.2	
Alkalinity	310.1	
Carbon Dioxide	Calc from 310.1	
Dissolved Gasses	RSK-175	RSK-175

Samples were analyzed by TestAmerica Laboratory, of Savannah, Georgia, and submitted as part of sample delivery group (SDG) KOM013. Samples included as a part of this validation are listed below:

Sample Identification	
GM31A-0811	GM31A-F(0.2)-0811
GM-58A-0811	GM-58A-F(0.2)-0811

Criteria were identified in the Revised Illinois Route 3 Drum Site Operation and Maintenance Plan (Solutia 2008) and evaluation of the analytical data followed procedures outlined in USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (USEPA 2004), where applicable to the above mentioned USEPA Methods. The evaluation criteria used during the validation were a combination of those criteria presented in the respective methods and the laboratory criteria based on historical data.

Criteria evaluated included the following method performance criteria:

- Data package completeness
- Laboratory case narrative/cooler receipt form
- Sample preservation and holding times
- Blank contamination
- Initial calibration
- Calibration verification
- Laboratory control sample (LCS)
- Laboratory duplicate analysis
- Matrix spike/matrix spike duplicate samples (MS/MSD)
- Sample result verification
- Overall data assessment

1.1 Data Package Completeness

The data package was reviewed to make certain that it contained the data contractually required in the deliverable. This included checking the data package for results of each analyte

requested for each field sample submitted in the analytical batch, along with requested QC documentation for the respective method. The data package was complete.

1.2 Laboratory Case Narrative/Cooler Receipt Form

The laboratory case narrative indicated the TOC container for sample GM-31A-0811 was received without any sample volume. The remaining semi-volatiles container contained sufficient sample to complete all requested analyses. Although not indicated in the laboratory case narrative samples were diluted due to high levels of nitrate and sulfate.

The cooler receipt form indicated samples in two of two coolers were received by the laboratory at 0.1^{o}C and 0.8^{o}C which is outside the 4^{o}C ± 2^{o}C criteria. The samples were received in good condition; therefore, no qualification of data was required. The TOC container for sample GM-31A was received without any sample volume. The remaining semi-volatiles container contained sufficient sample to complete the TOC analysis.

1.3 Sample Preservation and Holding Times

Review of the sample collection, extraction and analyses dates involved comparing the chain-of -custody, the sample preparation logs, the analysis run logs, and raw data forms for holding time compliance. The samples were persevered properly (4°C ± 2 °C) and at a pH <2 for sulfate and total organic carbon. All samples were analyzed within holding time criteria; 28 days for chloride, nitrate/nitrite, sulfate, total organic carbon, DOC and 14 days for alkalinity, and RSK-175. No qualifications of data were required based on holding times and sample preservation.

1.4 Blank Contamination

The purpose of method blank samples was to evaluate the existence and magnitude of contamination problems emanating from laboratory activities. Method blank samples were analyzed with each analytical batch as required. A review of the method blank summary forms and the raw data forms indicated all target compounds were reported as non-detect.

1.5 Initial Calibration

Initial calibration verification (ICV) criteria were established to assess whether the instrument was capable of producing acceptable qualitative and quantitative data for the wet chemistry analyses. Alkalinity concentrations are determined by titration; therefore, no calibration curve was generated. The verification of alkalinity analyses was achieved with the analysis of laboratory control samples (LCS). The LCS data is further discussed in the appropriate section below. An initial calibration was established at the beginning of the run sequence for the all other analyses. A minimum of five standards was used to establish the initial calibration curve as required by the analytical methods. Review of the initial calibration data indicated that the r values were greater than 0.995 for all calibration curves; therefore, no qualification of data was required. The ICAL for RSK-175 was established using at least eight concentration standards to establish the external calibration and all r values were greater than or equal to 0.995. No qualification of data was required based on initial calibration. Approximately 10% of the initial calibration and ICV recoveries were recalculated and compared to the raw data; no calculation or transcription errors were noted.

1.6 Calibration Verification

Calibration verification (CV) criteria were established to assess whether the instrument was capable of producing acceptable qualitative and quantitative data established by the initial calibration curve. CV samples were analyzed at the required frequency of every 10 samples and the percent differences (%D) or percent drift (%drift) values were within evaluation criteria for each analytical method. No qualification of data was required based on %drift.

Approximately 10% of the CV sample recoveries were recalculated and compared to the raw data. No calculation or transcription errors were noted.

1.7 Laboratory Control Sample (LCS)

Laboratory control samples (LCS) were established to assess the accuracy of the analytical method and to demonstrate laboratory performance. LCS recoveries were within the evaluation criteria; therefore, no qualification of data was required. A minimum of 10% of LCS recoveries were recalculated and compared to the raw data; no calculation or transcription errors were noted.

1.8 Laboratory Duplicate Analysis

Laboratory duplicate samples assess the precision of a particular sample. Sample GM-58A-0811 was duplicated and analyzed for alkalinity and free carbon dioxide. All RPD results were within laboratory limits. No qualification of data was required.

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

MS/MSD samples are analyzed to assess the accuracy, precision and the effects of matrix interference during the analysis of a particular sample. Sample GM-58A-0811 was spiked and analyzed for SVOCs. Although not requested for MS/MSD analysis, sample GM-31A-F(0.2)-0811 was spiked and analyzed for dissolved organic carbon. MS/MSD recoveries were within evaluation criteria. No qualification of data was required based on MS/MSD recoveries.

The MS/MSD percent recovery data was recalculated and compared to the raw data. No calculation or transcription errors were noted.

1.10 Sample Result Verification

A minimum of 10% of the validated sample results were recalculated to verify that analyte quantitation was derived accurately, and no calculation errors were noted. Data summary forms were reviewed and compared to the raw data package. No transcription errors were noted and the correct reporting limits were used.

1.11 Overall Data Assessment

Based on the criteria outlined, it is recommended that the results reported for these analyses be accepted for their intended use. Completeness, defined to be the percentage of analytical results that are judged to be valid, including estimated detect/non-detect (**J/UJ**) data, was 100 percent for this SDG.

SDG KOM013

Results of Samples from Monitoring Wells:

GM-31A
GM-58A

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-71633-1
TestAmerica Sample Delivery Group: KOM013
Client Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

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

Attn: Mr. Jerry Rinaldi

Lidya Gulizia

Authorized for release by:
09/27/2011 11:01:50 AM

Lidya Gulizia
Project Manager II
lidya.gulizia@testamericainc.com

cc: Bob Billman Dave Palmer

OCT 0 3 2011

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OCT 03 2011

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Job ID: 680-71633-1

Laboratory: TestAmerica Savannah

Narrative

Job Narrative
680-71633-1 / SDG KOM013

Receipt
The TOC container for GM-31A was received empty without any sample volume. The semivolatiles container was subsampled and preserved for TOC analysis.

All other samples were received in good condition within temperature requirements.

GC/MS Semi VOA
No analytical or quality issues were noted.

GC VOA
No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
Method(s) 325.2, SM 4500 Cl- E: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 212944 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Comments
No additional comments.

OCT 0 3 2011

Sample Summary

Client: Solutia Inc.
Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

TestAmerica Job ID: 680-71633-1
SDG: KOM013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-71633-1	GM-31A-0811	Water	08/22/11 13:15	08/23/11 09:46
680-71633-3	GM-31A-F(0.2)-0811	Water	08/22/11 13:15	08/23/11 09:46
680-71633-4	GM-58A-0811	Water	08/22/11 15:10	08/23/11 09:46
680-71633-5	GM-58A-F(0.2)-0811	Water	08/22/11 15:10	08/23/11 09:46
680-71633-6	TB-4	Water	08/22/11 00:00	08/23/11 09:46

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OCT 03 2011

TestAmerica Savannah

Method Summary

Client: Solutia Inc.
Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

TestAmerica Job ID: 680-71633-1
SDG: KOM013

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

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Protocol References:

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

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

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

Laboratory References:

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

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Qualifiers

GC/MS Semi VOA

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

GC VOA

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

Metals

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

General Chemistry

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

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Detection Summary

Client: Solutia Inc.
Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

TestAmerica Job ID: 680-71633-1
SDG: KOM013

Client Sample ID: GM-31A-0811 — Lab Sample ID: 680-71633-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2,4,6-Trichlorophenol	52		10		ug/L	1		8270C	Total/NA
2-Nitrobiphenyl	28		10		ug/L	1		8270C	Total/NA
2-chloronitrobenzene / 4-chloronitrobenzene	47		20		ug/L	1		8270C	Total/NA
Methane	1.7		0.58		ug/L	1		RSK-175	Total/NA
Iron	7.4		0.050		mg/L	1		6010B	Total Recovera
Manganese	1.0		0.010		mg/L	1		6010B	Total Recovera
Chloride	18		1.0		mg/L	1		325.2	Total/NA
Nitrate as N	4.4		0.25		mg/L	5		353.2	Total/NA
Sulfate	88		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	3.6		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	470		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	43		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GM-31A-F(0.2)-0811 — Lab Sample ID: 680-71633-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese, Dissolved	1.0		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	3.5		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GM-58A-0811 — Lab Sample ID: 680-71633-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-chloronitrobenzene / 4-chloronitrobenzene	45		20		ug/L	1		8270C	Total/NA
Methane	0.79		0.58		ug/L	1		RSK-175	Total/NA
Iron	1.1		0.050		mg/L	1		6010B	Total Recovera
Manganese	1.4		0.010		mg/L	1		6010B	Total Recovera
Chloride	41		1.0		mg/L	1		325.2	Total/NA
Sulfate	93		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	3.5		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	470		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	40		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GM-58A-F(0.2)-0811 — Lab Sample ID: 680-71633-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	0.79		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	1.4		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	3.4		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: TB-4 — Lab Sample ID: 680-71633-6

No Detections

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TestAmerica Savannah

Client: Solutia Inc.
Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

TestAmerica Job ID: 680-71633-1
SDG: KOM013

Client Sample ID: GM-31A-0811
Date Collected: 08/22/11 13:15
Date Received: 08/23/11 09:46

Lab Sample ID: 680-71633-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:07	1
2,4-Dichlorophenol	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:07	1
Nitrobenzene	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:07	1
Pentachlorophenol	50	U	50		ug/L		08/26/11 14:54	08/30/11 19:07	1
2,4,6-Trichlorophenol	**52**		10		ug/L		08/26/11 14:54	08/30/11 19:07	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:07	1
2-Nitrobiphenyl	**28**		10		ug/L		08/26/11 14:54	08/30/11 19:07	1
3-Nitrobiphenyl	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:07	1
3,4-Dichloronitrobenzene	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:07	1
4-Nitrobiphenyl	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:07	1
2-chloronitrobenzene / 4-chloronitrobenzene	**47**		20		ug/L		08/26/11 14:54	08/30/11 19:07	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:07	1

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*80*		*38 - 130*	*08/26/11 14:54*	*08/30/11 19:07*	*1*
2-Fluorophenol	*71*		*25 - 130*	*08/26/11 14:54*	*08/30/11 19:07*	*1*
Nitrobenzene-d5	*79*		*39 - 130*	*08/26/11 14:54*	*08/30/11 19:07*	*1*
Phenol-d5	*65*		*25 - 130*	*08/26/11 14:54*	*08/30/11 19:07*	*1*
Terphenyl-d14	*75*		*10 - 143*	*08/26/11 14:54*	*08/30/11 19:07*	*1*
2,4,6-Tribromophenol	*85*		*31 - 141*	*08/26/11 14:54*	*08/30/11 19:07*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			08/26/11 14:44	1
Ethylene	1.0	U	1.0		ug/L			08/26/11 14:44	1
Methane	**1.7**		0.58		ug/L			08/26/11 14:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**7.4**		0.050		mg/L		08/24/11 14:06	08/26/11 03:15	1
Manganese	**1.0**		0.010		mg/L		08/24/11 14:06	08/26/11 03:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**18**		1.0		mg/L			08/25/11 15:32	1
Nitrate as N	**4.4**		0.25		mg/L			08/23/11 16:46	5
Sulfate	**88**		25		mg/L			08/25/11 16:46	5
Total Organic Carbon	**3.6**		1.0		mg/L			09/01/11 09:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**470**		5.0		mg/L			08/23/11 15:44	1
Carbon Dioxide, Free	**43**		5.0		mg/L			08/23/11 15:44	1

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Client: Solutia Inc.
Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

TestAmerica Job ID: 680-71633-1
SDG: KOM013

Client Sample ID: GM-31A-F(0.2)-0811
Date Collected: 08/22/11 13:15
Date Received: 08/23/11 09:46

Lab Sample ID: 680-71633-3
Matrix: Water

Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.050	U	0.050		mg/L		08/24/11 14:06	08/26/11 03:21	1
Manganese, Dissolved	1.0		0.010		mg/L		08/24/11 14:06	08/26/11 03:21	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.5		1.0		mg/L			08/31/11 08:46	1

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TestAmerica Savannah

Client: Solutia Inc.
Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

TestAmerica Job ID: 680-71633-1
SDG: KOM013

Client Sample ID: GM-58A-0811
Date Collected: 08/22/11 15:10
Date Received: 08/23/11 09:46

Lab Sample ID: 680-71633-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:36	1
2,4-Dichlorophenol	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:36	1
Nitrobenzene	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:36	1
Pentachlorophenol	50	U	50		ug/L		08/26/11 14:54	08/30/11 19:36	1
2,4,6-Trichlorophenol	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:36	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:36	1
2-Nitrobiphenyl	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:36	1
3-Nitrobiphenyl	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:36	1
3,4-Dichloronitrobenzene	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:36	1
4-Nitrobiphenyl	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:36	1
2-chloronitrobenzene / 4-chloronitrobenzene	45		20		ug/L		08/26/11 14:54	08/30/11 19:36	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		08/26/11 14:54	08/30/11 19:36	1

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*59*		*38 - 130*	*08/26/11 14:54*	*08/30/11 19:36*	*1*
2-Fluorophenol	*59*		*25 - 130*	*08/26/11 14:54*	*08/30/11 19:36*	*1*
Nitrobenzene-d5	*63*		*39 - 130*	*08/26/11 14:54*	*08/30/11 19:36*	*1*
Phenol-d5	*54*		*25 - 130*	*08/26/11 14:54*	*08/30/11 19:36*	*1*
Terphenyl-d14	*68*		*10 - 143*	*08/26/11 14:54*	*08/30/11 19:36*	*1*
2,4,6-Tribromophenol	*70*		*31 - 141*	*08/26/11 14:54*	*08/30/11 19:36*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			08/26/11 14:57	1
Ethylene	1.0	U	1.0		ug/L			08/26/11 14:57	1
Methane	**0.79**		0.58		ug/L			08/26/11 14:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**1.1**		0.050		mg/L		08/24/11 14:06	08/26/11 03:26	1
Manganese	**1.4**		0.010		mg/L		08/24/11 14:06	08/26/11 03:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**41**		1.0		mg/L			08/25/11 15:32	1
Nitrate as N	0.050	U	0.050		mg/L			08/23/11 16:27	1
Sulfate	**93**		25		mg/L			08/25/11 16:46	5
Total Organic Carbon	**3.5**		1.0		mg/L			09/01/11 09:59	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**470**		5.0		mg/L			08/23/11 15:54	1
Carbon Dioxide, Free	**40**		5.0		mg/L			08/23/11 15:54	1

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TestAmerica Savannah

Client: Solutia Inc.
Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

TestAmerica Job ID: 680-71633-1
SDG: KOM013

Client Sample ID: GM-58A-F(0.2)-0811
Date Collected: 08/22/11 15:10
Date Received: 08/23/11 09:46

Lab Sample ID: 680-71633-5
Matrix: Water

Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.79		0.050		mg/L		08/24/11 14:06	08/26/11 03:31	1
Manganese, Dissolved	1.4		0.010		mg/L		08/24/11 14:06	08/26/11 03:31	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.4		1.0		mg/L			08/31/11 08:46	1

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TestAmerica Savannah

Client: Solutia Inc.
Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

TestAmerica Job ID: 680-71633-1
SDG: KOM013

Client Sample ID: TB-4
Date Collected: 08/22/11 00:00
Date Received: 08/23/11 09:46

Lab Sample ID: 680-71633-6
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			08/26/11 15:10	1
Ethylene	1.0	U	1.0		ug/L			08/26/11 15:10	1
Methane	0.58	U	0.58		ug/L			08/26/11 15:10	1

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Surrogate Summary

Client: Solutia Inc.
Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

TestAmerica Job ID: 680-71633-1
SDG: KOM013

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TPH	TBP
Lab Sample ID	Client Sample ID	(38-130)	(25-130)	(39-130)	(25-130)	(10-143)	(31-141)
680-71633-1	GM-31A-0811	80	71	79	65	75	85
680-71633-4	GM-58A-0811	59	59	63	54	68	70
680-71633-4 MS	GM-58A-0811	71	80	87	76	76	77
680-71633-4 MS	GM-58A-0811	69	58	69	61	66	80
680-71633-4 MSD	GM-58A-0811	58	65	70	52	56	62
680-71633-4 MSD	GM-58A-0811	71	62	71	62	63	79
LCS 680-213038/5-A	Lab Control Sample	87	80	88	83	82	93
LCS 680-213038/8-A	Lab Control Sample	67	80	82	77	82	72
MB 680-213038/4-A	Method Blank	86	89	87	85	84	86

Surrogate Legend

FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL = Phenol-d5
TPH = Terphenyl-d14
TBP = 2,4,6-Tribromophenol

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

Lab Sample ID: MB 680-213038/4-A
Matrix: Water
Analysis Batch: 213459

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 213038

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	10	U	10		ug/L		08/26/11 14:54	08/30/11 16:40	1
2,4-Dichlorophenol	10	U	10		ug/L		08/26/11 14:54	08/30/11 16:40	1
Nitrobenzene	10	U	10		ug/L		08/26/11 14:54	08/30/11 16:40	1
Pentachlorophenol	50	U	50		ug/L		08/26/11 14:54	08/30/11 16:40	1
2,4,6-Trichlorophenol	10	U	10		ug/L		08/26/11 14:54	08/30/11 16:40	1
1-Chloro-3-nitrobenzene	10	U	10		ug/L		08/26/11 14:54	08/30/11 16:40	1
2-Nitrobiphenyl	10	U	10		ug/L		08/26/11 14:54	08/30/11 16:40	1
3-Nitrobiphenyl	10	U	10		ug/L		08/26/11 14:54	08/30/11 16:40	1
3,4-Dichloronitrobenzene	10	U	10		ug/L		08/26/11 14:54	08/30/11 16:40	1
4-Nitrobiphenyl	10	U	10		ug/L		08/26/11 14:54	08/30/11 16:40	1
2-chloronitrobenzene / 4-chloronitrobenzene	20	U	20		ug/L		08/26/11 14:54	08/30/11 16:40	1
1-chloro-2,4-dinitrobenzene	10	U	10		ug/L		08/26/11 14:54	08/30/11 16:40	1

Surrogate	*MB % Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*86*		*38 - 130*	*08/26/11 14:54*	*08/30/11 16:40*	*1*
2-Fluorophenol	*89*		*25 - 130*	*08/26/11 14:54*	*08/30/11 16:40*	*1*
Nitrobenzene-d5	*87*		*39 - 130*	*08/26/11 14:54*	*08/30/11 16:40*	*1*
Phenol-d5	*85*		*25 - 130*	*08/26/11 14:54*	*08/30/11 16:40*	*1*
Terphenyl-d14	*84*		*10 - 143*	*08/26/11 14:54*	*08/30/11 16:40*	*1*
2,4,6-Tribromophenol	*86*		*31 - 141*	*08/26/11 14:54*	*08/30/11 16:40*	*1*

Lab Sample ID: LCS 680-213038/5-A
Matrix: Water
Analysis Batch: 213480

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 213038

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
1,1'-Biphenyl	100	78.9		ug/L		79	54 - 130
2,4-Dichlorophenol	100	81.9		ug/L		82	54 - 130
Nitrobenzene	100	79.7		ug/L		80	56 - 130
Pentachlorophenol	100	82.1		ug/L		82	42 - 138
2,4,6-Trichlorophenol	100	84.8		ug/L		85	57 - 130

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*87*		*38 - 130*
2-Fluorophenol	*80*		*25 - 130*
Nitrobenzene-d5	*88*		*39 - 130*
Phenol-d5	*83*		*25 - 130*
Terphenyl-d14	*82*		*10 - 143*
2,4,6-Tribromophenol	*93*		*31 - 141*

Lab Sample ID: LCS 680-213038/8-A
Matrix: Water
Analysis Batch: 213459

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 213038

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
1-Chloro-3-nitrobenzene	100	86.4		ug/L		86	10 - 130
2-Nitrobiphenyl	100	87.0		ug/L		87	10 - 130
3-Nitrobiphenyl	100	90.2		ug/L		90	10 - 130

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

Lab Sample ID: LCS 680-213038/8-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 213459 — **Prep Batch: 213038**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
3,4-Dichloronitrobenzene	100	91.9		ug/L		92	10 - 130
4-Nitrobiphenyl	100	88.7		ug/L		89	10 - 130
2-chloronitrobenzene / 4-chloronitrobenzene	200	160		ug/L		80	10 - 130
1-chloro-2,4-dinitrobenzene	100	107		ug/L		107	10 - 130

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*67*		*38 - 130*
2-Fluorophenol	*80*		*25 - 130*
Nitrobenzene-d5	*82*		*39 - 130*
Phenol-d5	*77*		*25 - 130*
Terphenyl-d14	*82*		*10 - 143*
2,4,6-Tribromophenol	*72*		*31 - 141*

Lab Sample ID: 680-71633-4 MS — **Client Sample ID: GM-58A-0811**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 213459 — **Prep Batch: 213038**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
1-Chloro-3-nitrobenzene	10	U	97.7	92.0		ug/L		94	10 - 130
2-Nitrobiphenyl	10	U	97.7	94.3		ug/L		96	10 - 130
3-Nitrobiphenyl	10	U	97.7	95.9		ug/L		98	10 - 130
3,4-Dichloronitrobenzene	10	U	97.7	96.0		ug/L		98	10 - 130
4-Nitrobiphenyl	10	U	97.7	94.2		ug/L		96	10 - 130
2-chloronitrobenzene / 4-chloronitrobenzene	45		195	216		ug/L		87	10 - 130
1-chloro-2,4-dinitrobenzene	10	U	97.7	124		ug/L		127	10 - 130

Surrogate	*MS % Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*71*		*38 - 130*
2-Fluorophenol	*80*		*25 - 130*
Nitrobenzene-d5	*87*		*39 - 130*
Phenol-d5	*76*		*25 - 130*
Terphenyl-d14	*76*		*10 - 143*
2,4,6-Tribromophenol	*77*		*31 - 141*

Lab Sample ID: 680-71633-4 MS — **Client Sample ID: GM-58A-0811**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 213480 — **Prep Batch: 213038**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
1,1'-Biphenyl	10	U	99.2	66.6		ug/L		67	54 - 130
2,4-Dichlorophenol	10	U	99.2	68.9		ug/L		69	54 - 130
Nitrobenzene	10	U	99.2	70.7		ug/L		70	56 - 130
Pentachlorophenol	50	U	99.2	82.2		ug/L		83	42 - 138
2,4,6-Trichlorophenol	10	U	99.2	75.6		ug/L		75	57 - 130

Surrogate	*MS % Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*69*		*38 - 130*

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

Lab Sample ID: 680-71633-4 MS
Matrix: Water
Analysis Batch: 213480

Client Sample ID: GM-58A-0811
Prep Type: Total/NA
Prep Batch: 213038

Surrogate	*MS % Recovery*	*MS Qualifier*	*Limits*
2-Fluorophenol	*58*		*25 - 130*
Nitrobenzene-d5	*69*		*39 - 130*
Phenol-d5	*61*		*25 - 130*
Terphenyl-d14	*66*		*10 - 143*
2,4,6-Tribromophenol	*80*		*31 - 141*

Lab Sample ID: 680-71633-4 MSD
Matrix: Water
Analysis Batch: 213459

Client Sample ID: GM-58A-0811
Prep Type: Total/NA
Prep Batch: 213038

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Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
1-Chloro-3-nitrobenzene	10	U	99.2	75.0		ug/L		76	10 - 130	20	50
2-Nitrobiphenyl	10	U	99.2	80.0		ug/L		81	10 - 130	16	50
3-Nitrobiphenyl	10	U	99.2	80.7		ug/L		81	10 - 130	17	50
3,4-Dichloronitrobenzene	10	U	99.2	77.6		ug/L		78	10 - 130	21	50
4-Nitrobiphenyl	10	U	99.2	78.4		ug/L		79	10 - 130	18	50
2-chloronitrobenzene / 4-chloronitrobenzene	45		198	175		ug/L		65	10 - 130	21	50
1-chloro-2,4-dinitrobenzene	10	U	99.2	102		ug/L		103	10 - 130	19	50

Surrogate	*MSD % Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*58*		*38 - 130*
2-Fluorophenol	*65*		*25 - 130*
Nitrobenzene-d5	*70*		*39 - 130*
Phenol-d5	*52*		*25 - 130*
Terphenyl-d14	*56*		*10 - 143*
2,4,6-Tribromophenol	*62*		*31 - 141*

Lab Sample ID: 680-71633-4 MSD
Matrix: Water
Analysis Batch: 213480

Client Sample ID: GM-58A-0811
Prep Type: Total/NA
Prep Batch: 213038

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
1,1'-Biphenyl	10	U	101	66.7		ug/L		66	54 - 130	0	50
2,4-Dichlorophenol	10	U	101	67.8		ug/L		67	54 - 130	2	50
Nitrobenzene	10	U	101	68.2		ug/L		67	56 - 130	4	50
Pentachlorophenol	50	U	101	77.9		ug/L		78	42 - 138	5	50
2,4,6-Trichlorophenol	10	U	101	71.9		ug/L		70	57 - 130	5	50

Surrogate	*MSD % Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*71*		*38 - 130*
2-Fluorophenol	*62*		*25 - 130*
Nitrobenzene-d5	*71*		*39 - 130*
Phenol-d5	*62*		*25 - 130*
Terphenyl-d14	*63*		*10 - 143*
2,4,6-Tribromophenol	*79*		*31 - 141*

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Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-213174/18
Matrix: Water
Analysis Batch: 213174

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			08/26/11 11:19	1
Ethylene	1.0	U	1.0		ug/L			08/26/11 11:19	1
Methane	0.58	U	0.58		ug/L			08/26/11 11:19	1

Lab Sample ID: LCS 680-213174/16
Matrix: Water
Analysis Batch: 213174

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Ethane	282	310		ug/L		110	75 - 125
Ethylene	271	302		ug/L		112	75 - 125
Methane	153	172		ug/L		112	75 - 125

Lab Sample ID: LCSD 680-213174/17
Matrix: Water
Analysis Batch: 213174

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Ethane	282	307		ug/L		109	75 - 125	1	30
Ethylene	271	299		ug/L		110	75 - 125	1	30
Methane	153	171		ug/L		112	75 - 125	0	30

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 680-212780/1-A
Matrix: Water
Analysis Batch: 213071

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 212780

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		08/24/11 14:06	08/26/11 02:54	1
Iron, Dissolved	0.050	U	0.050		mg/L		08/24/11 14:06	08/26/11 02:54	1
Manganese	0.010	U	0.010		mg/L		08/24/11 14:06	08/26/11 02:54	1
Manganese, Dissolved	0.010	U	0.010		mg/L		08/24/11 14:06	08/26/11 02:54	1

Lab Sample ID: LCS 680-212780/2-A
Matrix: Water
Analysis Batch: 213071

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 212780

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Iron	1.00	1.02		mg/L		102	75 - 125
Iron, Dissolved	1.00	1.02		mg/L		102	75 - 125
Manganese	0.500	0.528		mg/L		106	75 - 125
Manganese, Dissolved	0.500	0.528		mg/L		106	75 - 125

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Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-212683/2
Matrix: Water
Analysis Batch: 212683

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			08/23/11 15:28	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			08/23/11 15:28	1

Lab Sample ID: LCS 680-212683/3
Matrix: Water
Analysis Batch: 212683

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Alkalinity	230	207		mg/L		90	80 - 120

Lab Sample ID: LCSD 680-212683/9
Matrix: Water
Analysis Batch: 212683

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Alkalinity	230	209		mg/L		91	80 - 120	1	30

Lab Sample ID: 680-71633-4 DU
Matrix: Water
Analysis Batch: 212683

Client Sample ID: GM-58A-0811
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	470		470		mg/L		0.9	30
Carbon Dioxide, Free	40		38.4		mg/L		3	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-212944/1
Matrix: Water
Analysis Batch: 212944

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			08/25/11 15:02	1

Lab Sample ID: LCS 680-212944/6
Matrix: Water
Analysis Batch: 212944

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Chloride	50.0	54.8		mg/L		110	85 - 115

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-212686/3
Matrix: Water
Analysis Batch: 212686

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			08/23/11 16:17	1

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

Lab Sample ID: LCS 680-212686/4
Matrix: Water
Analysis Batch: 212686

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Nitrate as N	0.500	0.493		mg/L		99	90 - 110
Nitrate Nitrite as N	1.00	1.01		mg/L		101	90 - 110
Nitrite as N	0.500	0.519		mg/L		104	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-212968/1
Matrix: Water
Analysis Batch: 212968

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			08/25/11 16:04	1

Lab Sample ID: LCS 680-212968/2
Matrix: Water
Analysis Batch: 212968

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Sulfate	20.0	20.7		mg/L		103	75 - 125

Method: 415.1 - DOC

Lab Sample ID: MB 680-213569/1
Matrix: Water
Analysis Batch: 213569

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			08/31/11 08:46	1

Lab Sample ID: LCS 680-213569/2
Matrix: Water
Analysis Batch: 213569

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Dissolved Organic Carbon	20.0	19.3		mg/L		96	80 - 120

Lab Sample ID: 680-71633-3 MS
Matrix: Water
Analysis Batch: 213569

Client Sample ID: GM-31A-F(0.2)-0811
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
Dissolved Organic Carbon	3.5		20.0	23.8		mg/L		102	80 - 120

Lab Sample ID: 680-71633-3 MSD
Matrix: Water
Analysis Batch: 213569

Client Sample ID: GM-31A-F(0.2)-0811
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	3.5		20.0	23.5		mg/L		100	80 - 120	2	20

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Client: Solutia Inc.
Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

TestAmerica Job ID: 680-71633-1
SDG: KOM013

Method: 415.1 - TOC

Lab Sample ID: MB 680-213697/2
Matrix: Water
Analysis Batch: 213697

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			09/01/11 08:15	1

Lab Sample ID: LCS 680-213697/4
Matrix: Water
Analysis Batch: 213697

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Total Organic Carbon	20.0	19.3		mg/L		97	80 - 120

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GC/MS Semi VOA

Prep Batch: 213038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-1	GM-31A-0811	Total/NA	Water	3520C	
680-71633-4	GM-58A-0811	Total/NA	Water	3520C	
680-71633-4 MS	GM-58A-0811	Total/NA	Water	3520C	
680-71633-4 MS	GM-58A-0811	Total/NA	Water	3520C	
680-71633-4 MSD	GM-58A-0811	Total/NA	Water	3520C	
680-71633-4 MSD	GM-58A-0811	Total/NA	Water	3520C	
LCS 680-213038/5-A	Lab Control Sample	Total/NA	Water	3520C	
LCS 680-213038/8-A	Lab Control Sample	Total/NA	Water	3520C	
MB 680-213038/4-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 213459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-1	GM-31A-0811	Total/NA	Water	8270C	213038
680-71633-4	GM-58A-0811	Total/NA	Water	8270C	213038
680-71633-4 MS	GM-58A-0811	Total/NA	Water	8270C	213038
680-71633-4 MSD	GM-58A-0811	Total/NA	Water	8270C	213038
LCS 680-213038/8-A	Lab Control Sample	Total/NA	Water	8270C	213038
MB 680-213038/4-A	Method Blank	Total/NA	Water	8270C	213038

Analysis Batch: 213480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-4 MS	GM-58A-0811	Total/NA	Water	8270C	213038
680-71633-4 MSD	GM-58A-0811	Total/NA	Water	8270C	213038
LCS 680-213038/5-A	Lab Control Sample	Total/NA	Water	8270C	213038

GC VOA

Analysis Batch: 213174

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-1	GM-31A-0811	Total/NA	Water	RSK-175	
680-71633-4	GM-58A-0811	Total/NA	Water	RSK-175	
680-71633-6	TB-4	Total/NA	Water	RSK-175	
LCS 680-213174/16	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-213174/17	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-213174/18	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 212780

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-1	GM-31A-0811	Total Recoverable	Water	3005A	
680-71633-3	GM-31A-F(0.2)-0811	Dissolved	Water	3005A	
680-71633-4	GM-58A-0811	Total Recoverable	Water	3005A	
680-71633-5	GM-58A-F(0.2)-0811	Dissolved	Water	3005A	
LCS 680-212780/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-212780/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 213071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-1	GM-31A-0811	Total Recoverable	Water	6010B	212780
680-71633-3	GM-31A-F(0.2)-0811	Dissolved	Water	6010B	212780
680-71633-4	GM-58A-0811	Total Recoverable	Water	6010B	212780

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Metals (Continued)

Analysis Batch: 213071 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-5	GM-58A-F(0.2)-0811	Dissolved	Water	6010B	212780
LCS 680-212780/2-A	Lab Control Sample	Total Recoverable	Water	6010B	212780
MB 680-212780/1-A	Method Blank	Total Recoverable	Water	6010B	212780

General Chemistry

Analysis Batch: 212683

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-1	GM-31A-0811	Total/NA	Water	310.1	
680-71633-4	GM-58A-0811	Total/NA	Water	310.1	
680-71633-4 DU	GM-58A-0811	Total/NA	Water	310.1	
LCS 680-212683/3	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-212683/9	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-212683/2	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 212686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-1	GM-31A-0811	Total/NA	Water	353.2	
680-71633-4	GM-58A-0811	Total/NA	Water	353.2	
LCS 680-212686/4	Lab Control Sample	Total/NA	Water	353.2	
MB 680-212686/3	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 212944

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-1	GM-31A-0811	Total/NA	Water	325.2	
680-71633-4	GM-58A-0811	Total/NA	Water	325.2	
LCS 680-212944/6	Lab Control Sample	Total/NA	Water	325.2	
MB 680-212944/1	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 212968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-1	GM-31A-0811	Total/NA	Water	375.4	
680-71633-4	GM-58A-0811	Total/NA	Water	375.4	
LCS 680-212968/2	Lab Control Sample	Total/NA	Water	375.4	
MB 680-212968/1	Method Blank	Total/NA	Water	375.4	

Analysis Batch: 213569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-3	GM-31A-F(0.2)-0811	Dissolved	Water	415.1	
680-71633-3 MS	GM-31A-F(0.2)-0811	Dissolved	Water	415.1	
680-71633-3 MSD	GM-31A-F(0.2)-0811	Dissolved	Water	415.1	
680-71633-5	GM-58A-F(0.2)-0811	Dissolved	Water	415.1	
LCS 680-213569/2	Lab Control Sample	Dissolved	Water	415.1	
MB 680-213569/1	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 213697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71633-1	GM-31A-0811	Total/NA	Water	415.1	
680-71633-4	GM-58A-0811	Total/NA	Water	415.1	
LCS 680-213697/4	Lab Control Sample	Total/NA	Water	415.1	
MB 680-213697/2	Method Blank	Total/NA	Water	415.1	

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Client Sample ID: GM-31A-0811 — **Lab Sample ID: 680-71633-1**
Date Collected: 08/22/11 13:15 — **Matrix: Water**
Date Received: 08/23/11 09:46

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			994.7 mL	1 mL	213038	08/26/11 14:54	RBS	TAL SAV
Total/NA	Analysis	8270C		1			213459	08/30/11 19:07	LH	TAL SAV
Total/NA	Analysis	RSK-175		1	17000 uL	17 mL	213174	08/26/11 14:44	SMC	TAL SAV
Total Recoverable	Prep	3005A			50 mL	50 mL	212780	08/24/11 14:06	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1			213071	08/26/11 03:15	BCB	TAL SAV
Total/NA	Analysis	310.1		1	30 mL	30 mL	212683	08/23/11 15:44	TR	TAL SAV
Total/NA	Analysis	353.2		5	2 mL	2 mL	212686	08/23/11 16:46	JR	TAL SAV
Total/NA	Analysis	325.2		1	2 mL	2 mL	212944	08/25/11 15:32	JR	TAL SAV
Total/NA	Analysis	375.4		5	2 mL	2 mL	212968	08/25/11 16:46	JR	TAL SAV
Total/NA	Analysis	415.1		1	25 mL	25 mL	213697	09/01/11 09:40	TH	TAL SAV

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Client Sample ID: GM-31A-F(0.2)-0811 — **Lab Sample ID: 680-71633-3**
Date Collected: 08/22/11 13:15 — **Matrix: Water**
Date Received: 08/23/11 09:46

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	212780	08/24/11 14:06	RAM	TAL SAV
Dissolved	Analysis	6010B		1			213071	08/26/11 03:21	BCB	TAL SAV
Dissolved	Analysis	415.1		1			213569	08/31/11 08:46	TH	TAL SAV

Client Sample ID: GM-58A-0811 — **Lab Sample ID: 680-71633-4**
Date Collected: 08/22/11 15:10 — **Matrix: Water**
Date Received: 08/23/11 09:46

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			500.0 mL	0.5 mL	213038	08/26/11 14:54	RBS	TAL SAV
Total/NA	Analysis	8270C		1			213459	08/30/11 19:36	LH	TAL SAV
Total/NA	Analysis	RSK-175		1	17000 uL	17 mL	213174	08/26/11 14:57	SMC	TAL SAV
Total Recoverable	Prep	3005A			50 mL	50 mL	212780	08/24/11 14:06	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1			213071	08/26/11 03:26	BCB	TAL SAV
Total/NA	Analysis	310.1		1	30 mL	30 mL	212683	08/23/11 15:54	TR	TAL SAV
Total/NA	Analysis	353.2		1	2 mL	2 mL	212686	08/23/11 16:27	JR	TAL SAV
Total/NA	Analysis	325.2		1	2 mL	2 mL	212944	08/25/11 15:32	JR	TAL SAV
Total/NA	Analysis	375.4		5	2 mL	2 mL	212968	08/25/11 16:46	JR	TAL SAV
Total/NA	Analysis	415.1		1	25 mL	25 mL	213697	09/01/11 09:59	TH	TAL SAV

Client Sample ID: GM-58A-F(0.2)-0811 — **Lab Sample ID: 680-71633-5**
Date Collected: 08/22/11 15:10 — **Matrix: Water**
Date Received: 08/23/11 09:46

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	212780	08/24/11 14:06	RAM	TAL SAV
Dissolved	Analysis	6010B		1			213071	08/26/11 03:31	BCB	TAL SAV

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Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

TestAmerica Job ID: 680-71633-1
SDG: KOM013

Client Sample ID: GM-58A-F(0.2)-0811
Date Collected: 08/22/11 15:10
Date Received: 08/23/11 09:46

Lab Sample ID: 680-71633-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1			213569	08/31/11 08:46	TH	TAL SAV

Client Sample ID: TB-4
Date Collected: 08/22/11 00:00
Date Received: 08/23/11 09:46

Lab Sample ID: 680-71633-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	17000 uL	17 mL	213174	08/26/11 15:10	SMC	TAL SAV

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

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TestAmerica Savannah

OCT 0 3 2011

Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Dave Palmer	Site Contact: Nathan McNurlen	Carrier:	COC No:
URS Corporation	Tel/Fax: (314) 743-4154	Lab Contact: Lidya Gulizia		1 of 1 COCs
1001 Highlands Plaza Drive West, Suite 300	Analysis Turnaround Time			Job No. 21562682.00001 680-71633
St. Louis, MO 63110	Calendar (C) or Work Days (W)			
(314) 429-0100 Phone	TAT if different from Below C			SDG No
(314) 429-0462 FAX	☒ 2 weeks			
Project Name: 3Q11 Route 3 GW Sampling	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	SVOCs by 8270C*	Total Fe/Mn by 6010B	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Methane by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010B	DOC by 415.1	Sample Specific Notes:
GM-31A-0811	8/22/11	1315	G	Water	11		2	1	1	1	3	2	1			
GM-31A-0811-AD	8/22/11	1315	G	Water	2		2									
GM-31A-F(0.2)-0811	8/22/11	1315	G	Water	2	X								1	1	
GM-58A-0811	8/22/11	1510	G	Water	11		2	1	1	1	3	2	1			
GM-58A-0811-MS	8/22/11	1510	G	Water	2		2									
GM-58A-0811-MSD	8/22/11	1510	G	Water	2		2									
GM-58A-F(0.2)-0811	8/22/11	1510	G	Water	2	X								1	1	
TB-4	8/22/11	0000	—	W	2						2					As necessary
							1	4	1	1	1	3,1	2	4	2	

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

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments: Level 4 Data Package

Temp 0.1°C/0.8°C

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	URS	8/22/11 1715		TA	8/22/11 1715
Relinquished by:	Company:	Date/Time:	Received by: Bethany Daughtry	Company: TA SAV	Date/Time: 08.23.11 0946
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-71633-1
SDG Number: KOM013

Login Number: 71633
List Number: 1
Creator: Daughtry, Beth

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	2 coolers rec'd on ice
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.1, 0.8 C
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 sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	-1: rec'd 125ml amber (TOC) bottle w/no sample
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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Certification Summary

Client: Solutia Inc.
Project/Site: WGK Route 3 Drum Site O&M-3Q11 AUG 2011

TestAmerica Job ID: 680-71633-1
SDG: KOM013

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	Arkansas DOH	6	N/A
TestAmerica Savannah	Arkansas	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Delaware	State Program	3	N/A
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	Georgia	Georgia EPD	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kentucky	Kentucky UST	4	18
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina	North Carolina DENR	4	269
TestAmerica Savannah	North Carolina	North Carolina PHL	4	13701
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	USDA		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	NELAC Secondary AB	3	460161
TestAmerica Savannah	Virginia	State Program	3	302
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	West Virginia DEP	3	94
TestAmerica Savannah	West Virginia	West Virginia DHHR (DW)	3	9950C
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

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TestAmerica Savannah