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March 15, 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: Long-Term Monitoring Program
4th Quarter 2010 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Mr. Bardo:

Enclosed please find the Long-Term Monitoring Program 4th Quarter 2010 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

Long-Term Monitoring Program
4th Quarter 2010 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

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FOURTH QUARTER 2010
DATA REPORT
LONG-TERM MONITORING PROGRAM
SOLUTIA INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

Prepared for:

SOLUTIA INC.
St. Louis, Missouri

Prepared by:

GEOTECHNOLOGY, INC.
St. Louis, Missouri

Geotechnology, Inc. Report No. J017210.06

March 15, 2011

J017210.06

FOURTH QUARTER 2010
DATA REPORT
LONG-TERM MONITORING PROGRAM
SOLUTIA INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

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FOURTH QUARTER 2010
DATA REPORT
LONG-TERM MONITORING PROGRAM
SOLUTIA INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

1.0 INTRODUCTION

This report presents the results of the 4th Quarter 2010 (4Q10) sampling event performed at the Solutia Inc. (Solutia) W.G. Krummrich (WGK) Facility located in Sauget, Illinois (Site). This sampling event was conducted in accordance with the Revised Long-Term Monitoring Program (LTMP) Work Plan (Solutia 2009). The Site location is presented in Figure 1.

The LTMP was designed to evaluate the effectiveness of monitored natural attenuation (MNA), including: 1) a clear and meaningful trend of decreasing contaminant mass; 2) data that indirectly demonstrate the types and rates of natural attenuation processes active at the site; and 3) data that directly demonstrate the occurrence of biodegradation processes at the site.

Groundwater Sampling Location and Frequency. As specified in the Revised LTMP Work Plan, groundwater samples will be collected from five monitoring wells downgradient of the Former Chlorobenzene Process Area (CPA-MW-1D through CPA-MW-5D) and five monitoring wells downgradient of the Former Benzene Storage Area (BSA-MW-1S and BSA-MW-2D through BSA-MW-5D) to assess attenuation processes in the American Bottoms aquifer, as impacted groundwater from these source areas migrates toward and discharges to the Mississippi River.

Monitoring Wells BSA-MW-1S, 2D, 3D, 4D and 5D are located within the limiting flow lines downgradient of the Former Benzene Storage Area. Monitoring Wells CPA-MW-1D, 2D, 3D, 4D and 5D are located within the limiting flow lines downgradient of the Former Chlorobenzene Process Area. Source areas and monitoring well locations are presented in Figure 2.

Quarterly sampling under the Long-Term Monitoring Program commenced 3Q08 and a total of 10 quarters have been completed as of 4Q10.

Groundwater Sampling Parameters. During the 4Q10 groundwater sampling event, groundwater samples were analyzed for benzene, monochlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene using USEPA Method 8260B.

MNA samples were collected from all ten long-term monitoring program wells. Evaluation of the types of active natural attenuation processes at the site is based on the following key geochemical parameters:

- Electron Donors: Organic Carbon (Total and Dissolved)
- Electron Acceptors: Iron (Total and Dissolved)
Manganese (Total and Dissolved)
Nitrate
Sulfate
- Biodegradation Byproducts: Carbon Dioxide
Chloride
Methane
- Biodegradation Indicators: Alkalinity

Direct demonstration of the occurrence of biodegradation processes is completed quarterly utilizing Microbial Insights (www.microbe.com) Bio-Trap® Samplers for Phospholipid Fatty Acid (PLFA) Analysis, along with Stable Isotope Probes (SIPs) for benzene or chlorobenzene in select wells.

2.0 FIELD PROCEDURES

Geotechnology, Inc. (Geotechnology) conducted the majority of 4Q10 field activities from November 22 through December 7, 2010. Activities were completed in accordance with procedures outlined in the Revised LTMP Work Plan, including the collection of appropriate quality assurance and quality control (QA/QC) samples. The following section summarizes field investigative procedures:

Groundwater Level Measurements. Geotechnology personnel used an electronic oil/water interface probe to measure depth to static groundwater levels and if present, the thickness of non-aqueous phase liquid (NAPL), to 0.01 feet. Depth to groundwater measurements were collected from accessible existing wells (i.e., GM-, K- , PSMW- and PMA-series) and piezometers clusters (installed for the Sauget Area 2 RI/FS and WGK CA-750 Environmental Indicator projects) specified in the Revised LTMP Work Plan (Figure 3). NAPL was not detected within any of the ten LTMP monitoring wells.

Well gauging information for the 4Q10 event is presented in Table 1. As the middle and deep hydrogeologic units are the primary migration pathway for constituents present in groundwater at the WGK Facility, a groundwater potentiometric surface map based on water level data from wells screened in the Middle Hydrogeologic Unit (MHU) and Deep Hydrogeologic Unit (DHU) is presented as Figure 3.

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 of 150 to 450 mL/minute to minimize drawdown. If significant drawdown occurred, flow rates were reduced.

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 ten 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, in the following order:

- Volatile Organic Compounds (VOCs)
- Gas Sensitive Parameters (e.g., methane, carbon dioxide)
- 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, and oxidation-reduction potential).

Samples collected for dissolved iron and dissolved manganese analysis were filtered in the field using in-line 0.2 micron disposable filters, represented by a notation of “F” in the sample nomenclature.

Quality assurance/quality control (QA/QC) samples consisting of analytical duplicates (AD) and equipment blanks (EB) were collected at a rate of 10% and matrix spike/matrix spike duplicates (MS/MSD) were collected at a rate of 5%. In addition, trip blanks accompanied each shipment containing samples for VOC analysis.

Each investigative or QC sample was labeled immediately following collection. Each sample identification number consisted of the following nomenclature "AAAMW#-MMYY-QAC" where:

- "AAA" denotes "Chlorobenzene Process Area (CPA)" or "Benzene Storage Area (BSA)"and "MW-#" denotes "Monitoring Well Number":
- MMYY – Month and year of sampling quarter, e.g.: Fourth quarter (December) 2010, 1210
- "QAC" denotes QA/QC sample
  - AD – analytical duplicate
  - EB – equipment blank
  - MS or MSD – Matrix Spike or Matrix Spike Duplicate

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 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, preservative used (if applicable), 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 an overnight delivery service. Field sampling data sheets are included in Appendix A, COCs are included in Appendix B.

Field personnel and equipment were decontaminated according to procedures specified in the Revised LTMP Work Plan to ensure the health and safety of those present, maintain sample integrity, and minimize movement of contamination between the work area and off-site locations. Equipment used on-site was decontaminated prior to beginning work, between sampling locations and/or uses, and prior to demobilizing from the site. Non-disposable purging and sampling equipment was decontaminated between each sample acquisition by washing with an Alconox® or equivalent detergent wash, a potable water rinse, and a distilled water rinse. Personnel and small equipment decontamination was performed at the sample locations. Disposable sampling equipment, such as gloves were collected and bagged on a daily basis and managed in accordance with Solutia procedures. Purge water was containerized and handled per Solutia procedures.

Biodegradation Evaluation Sampling**.** Bio-Trap® samplers and Stable Isotope Probes (SIPs), provided by Microbial Insights, Inc. (Rockford, TN), were utilized in the LTMP to provide information regarding biodegradation potential of the Shallow Hydrogeologic Unit (SHU), the MHU and the DHU. Bio-Trap® samplers are passive sampling tools which, over time, collect microbes across a membrane that serves as the sampling matrix. SIPs are similar passive sampling tools that are analyzed to measure the degradation of a specific contaminant (i.e., benzene and chlorobenzene).

On October 25, 2010, Geotechnology field personnel deployed Bio-Trap® samplers in each of the ten LTMP wells for PLFA analysis. A benzene SIP and a chlorobenzene SIP were placed in monitoring wells BSA-MW-2D and CPA-MW-3D, respectively. Bio-Trap® samplers and SIPs were tied to nylon line attached to the well cap and lowered to the middle of the well screen.

On November 23, 2010, the Bio-Trap® samplers and SIPs were retrieved from the wells, sealed in Ziploc® bags, labeled with the proper well identification and placed in an iced sample cooler with a signed COC. Sealed sample coolers were sent to Microbial Insights, Inc. for analysis. A copy of the Microbial Insights Data Package is included in appendix E.

3.0 LABORATORY PROCEDURES

Samples were analyzed by TestAmerica for VOCs and MNA parameters, using the following methodologies:

- VOCs, via USEPA SW-846 Method 8260B
- MNA parameters: alkalinity (310.1), carbon dioxide (310.1), chloride (325.2), total and dissolved iron (6010B), total and dissolved manganese (6010B), dissolved gases (RSK 175), nitrate (353.2), sulfate (375.4), and total and dissolved organic carbon (415.1).

Dichlorobenzenes were quantitated using Method 8260B because of potential volatilization losses associated with Method 8270C. 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 Long Term Monitoring Work Plan. Data qualifiers were added, as appropriate, and are included on the data tables and the laboratory result pages. The Quality Assurance report is included as Appendix C. The laboratory report and data review sheets are included in Appendix D.

A total of 14 groundwater samples (10 investigative samples, 1 field duplicate, 1 MS/MSD pair and 1 equipment blank) were prepared and analyzed by TestAmerica for combinations of VOCs, dissolved gases, metals, and general chemistry. In addition, three trip blank sets were included in the coolers that contained samples for VOC analysis and were analyzed for VOCs. The results for the various analyses were submitted as sample delivery group (SDG) KPS061 and KPS062.

The samples contained in SDG KPS061 and SDG KPS062 are listed below:

SDG KPS061	**SKG KPS062**
BSA-MW-03D-1210	BSA-MW-01S-1210
BSA-MW-03D-F(9.2)-1210	BSA-MW-01S-F(0.2)-1210
BSA-MW-03D-1210-EB	BSA-MW-02D-1210
BSA-MW-04D-1210	BSA-MW-02D-F(0.2)-1210
BSA-MW-04D-F(0.2)-1210	CPA-MW-01D-1210
BSA-MW-05D-1210	CPA-MW-01D-F(0.2)-1210
BSA-MW-05D-F(0.2)-1210	CPA-MW-02D-1210
CPA-MW-04D-1210	CPA-MW-02D-F(0.2)-1210
CPA-MW-04D-F(0.2)-1210	CPA-MW-02D-1210-AD
CPA-MW-05D-1210	CPA-MW-03D-1210
CPA-MW-05D-1210-MS	CPA-MW-03D-F(0.2)-1210
CPA-MW-05D-1210-MSD	Trip Blank #3 LTM 4Q10
CPA-MW-05D-F(0.2)-1210	4Q10 LTM TRIP BLANK #3
4Q10 LTM Trip Blk #1	
4Q LTM Trip Blank #2	

Evaluation of the groundwater 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 Long-Term Monitoring Program (LTMP) Work Plan (Solutia 2009).

Based on the above mentioned criteria, groundwater results reported for the analyses performed were accepted for their intended use. Acceptable levels of accuracy and precision,

based on matrix spike/matrix spike duplicate (MS/MSD), laboratory control sample (LCS), surrogate and field duplicate data were achieved for these SDGs to meet the project objectives. Completeness which is defined to be the percentage of analytical results which are judged to be valid with the exception of rejected (**R**) flagged data, including estimated detect/nondetect data was 95.6 percent.

5.0 OBSERVATIONS

Groundwater analytical detections and MNA results for the 4Q10 LTMP sampling event are presented in Tables 2 and 3, respectively. Five constituents - benzene, chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene and 1,4-dichlorobenzene - were reported in samples collected from the ten LTMP wells during this sampling event. Each of these constituents is discussed below:

Benzene - Benzene was detected in collected samples at levels above the laboratory reporting limit in eight of the ten wells sampled in 4Q10, ranging from 30 µg/L (BSA-MW-4D) to 640,000 µg/L (BSA-MW-1S).

Downgradient of the Former Benzene Storage Area, benzene was detected in the DHU at concentrations of 290,000 µg/L (BSA-MW-2D), 75 µg/L (BSA-MW-3D), and 30 µg/L (BSA-MW-4D). Near the river north of the Sauget Area 2 Groundwater Migration Control System (SA2 GMCS), benzene was not detected in the DHU at monitoring well BSA-MW-5D.

Benzene was detected at the Former Chlorobenzene Process Area at a concentration of 8,000 µg/L (CPA-MW-1D). Downgradient of the Former Chlorobenzene Storage Area, benzene was detected in the DHU at concentrations of 470 µg/L (CPA-MW-2D), 68 µg/L (CPA-MW-3D) and 49 µg/L (CPA-MW-4D). Benzene was not detected in the DHU near the river north of SA2 GMCS at monitoring well CPA-MW-5D.

Chlorobenzenes (Total) - Total chlorobenzenes (e.g., sum of chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4, dichlorobenzene) were detected at levels above the laboratory reporting limit in nine of the ten wells sampled in 4Q10, ranging from 222 µg/L (CPA-MW-4D) to 50,200 µg/L (CPA-MW-1D).

Chlorobenzenes were detected at the Former Chlorobenzene Process Area at a concentration of 50,200 µg/L (CPA-MW-1D). Downgradient of the Former Chlorobenzene Storage Area, total chlorobenzenes were detected in the DHU at concentrations of 34,000/34,330 µg/L at the North Tank Farm (CPA-MW-2D and duplicate), along with

concentrations of 310 µg/L (CPA-MW-3D) and 222 µg/L (CPA-MW-4D). Total chlorobenzenes were detected in the DHU near the river north of SA2 GMCS at a concentration of 1,200 µg/L (CPA-MW-5D).

Chlorobenzenes were not detected in the SHU at the Former Benzene Storage Area BSA-MW-1S). Downgradient of the Former Benzene Storage Area, total chlorobenzenes were detected at concentrations of 2,000 µg/L (BSA-MW-2D) and 1,525 µg/L (BSA-MW-3D). North of the SA2 GMCS, near the river, total chlorobenzenes were detected in the DHU at concentrations of 2,355 µg/L (BSA-MW-4D) and 320 µg/L (BSA-MW-5D).

Figure 4 displays benzene and total chlorobenzenes results from the 4Q10 sampling event.

Monitored Natural Attenuation - The MNA results for this quarter are presented in Table 3. PLFA and SIP laboratory results are included in Appendix E.

6.0 REFERENCES

Solutia Inc, 2009. Revised Long Term Monitoring Program, Solutia, Inc., W.G. Krummrich Facility, Sauget, Illinois, May 2009.

USEPA, 2004. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.

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

See last page of table for notes.

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Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						November 2010		
	Ground Elevation* (feet)	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 feet NAVD 88)									
BSA-MW-1S	409.49	412.31	19.68	24.68	389.81	384.81	14.34	27.50	397.97
Middle Hydrogeologic Unit (MHU 380-350 feet NAVD 88)									
PMA-MW-1M	410.32	410.08	54.54	59.54	355.78	350.78	11.76	59.7	398.32
PMA-MW-2M	412.26	411.93	56.87	61.87	355.39	350.39	13.56	61.77	398.37
PMA-MW-3M	412.36	412.10	57.07	62.07	355.29	350.29	13.61	61.9	398.49
PMA-MW-5M	411.27	410.97	52.17	57.17	359.10	354.10	12.08	57.13	398.89
PS-MW-1	409.37	412.59	37.78	42.78	371.59	366.59	13.57	46.26	399.02
Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock)									
BSA-MW-2D	412.00	415.13	68.92	73.92	343.08	338.08	18.22	77.3	396.91
BSA-MW-3D	412.91	415.74	107.02	112.02	305.89	300.89	20.33	116	395.41
BSA-MW-4D	425.00	424.69	118.54	123.54	306.46	301.46	30.70	123.75	393.99
BSA-MW-5D	420.80	420.49	115.85	120.85	304.95	299.95	26.00	122.45	394.49
CPA-MW-1D	408.62	408.32	66.12	71.12	342.50	337.50	10.00	71.3	398.32
CPA-MW-2D	408.51	408.20	99.96	104.96	308.55	303.55	10.70	105.3	397.50
CPA-MW-3D	410.87	410.67	108.20	113.20	302.67	297.67	13.15	114.45	397.52
CPA-MW-4D	421.57	421.20	116.44	121.44	305.13	300.13	26.60	122.4	394.60
CPA-MW-5D	411.03	413.15	107.63	112.63	303.40	298.40	20.95	114.75	392.20
DNAPL-K-1	413.07	415.56	108.20	123.20	304.87	289.87	16.67	124	398.89
DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	9.21	112.42	398.51
DNAPL-K-3	412.13	411.91	104.80	119.80	307.33	292.33	12.80	120.4	399.11
DNAPL-K-4	409.48	409.15	102.55	117.55	306.93	291.93	11.24	115.31	397.91
DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	13.45	117.54	398.46
DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	11.71	118	398.38
DNAPL-K-7	408.32	407.72	100.40	115.40	307.92	292.92	9.53	116.32	398.19
DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	13.54	117.8	397.84
DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	7.58	111.15	398.39
DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	14.45	121.5	398.80
DNAPL-K-11	412.00	411.78	105.46	120.46	306.74	291.74	13.57	121.5	398.21
GM-9C	409.54	411.21	88.00	108.00	321.54	301.54	12.88	110.9	398.33

See last page of table for notes.

J017210.06

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						November 2010		
	Ground Elevation* (feet)	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)
Deep Hydrogeologic Unit (DHU 350 feet NAVD - Bedrock)									
GWE-1D (PIEZ-1D)	412.80	415.60	117.00	127.00	295.80	285.80	24.35	130.35	391.25
GWE-2D (PIEZ-2D)	417.45	417.14	127.00	137.00	290.45	280.45	24.22	137.55	392.92
GWE-4D (TRA3-PZADHU)	406.05	405.74	74.00	80.00	332.05	326.05	9.70	79.20	396.04
GWE-10D (PIEZ 6D)	410.15	412.87	102.50	112.50	307.65	297.65	15.65	115.50	397.22
GWE-14D (TRA5-PZCDHU)	420.47	422.90	90.00	96.00	330.47	324.47	28.35	97.50	394.55
PMA-MW-4D	411.22	410.88	68.84	73.84	342.38	337.38	12.50	73.80	398.38
PMA-MW-6D	407.63	407.32	96.49	101.49	311.14	306.14	8.90	102.00	398.42
PSMW-6	404.11	406.63	99.80	104.80	304.31	299.31	11.75	110.65	394.88
PSMW-9	403.92	403.52	100.40	105.40	303.52	298.52	5.80	106.15	397.72
PSMW-10	409.63	412.18	101.23	106.23	308.40	303.40	17.95	112.15	394.23
PSMW-13	405.80	405.53	106.08	111.08	299.72	294.72	9.30	111.60	396.23
PSMW-17	420.22	423.26	121.25	126.25	298.97	293.97	30.90	136.00	392.36

Notes:
* - Elevation based upon North American Vertical Datum (NAVD) 88 datum
bgs - Below ground surface
btoc - Below top of casing
NG - Not gauged

Table 2
Groundwater Analytical Results

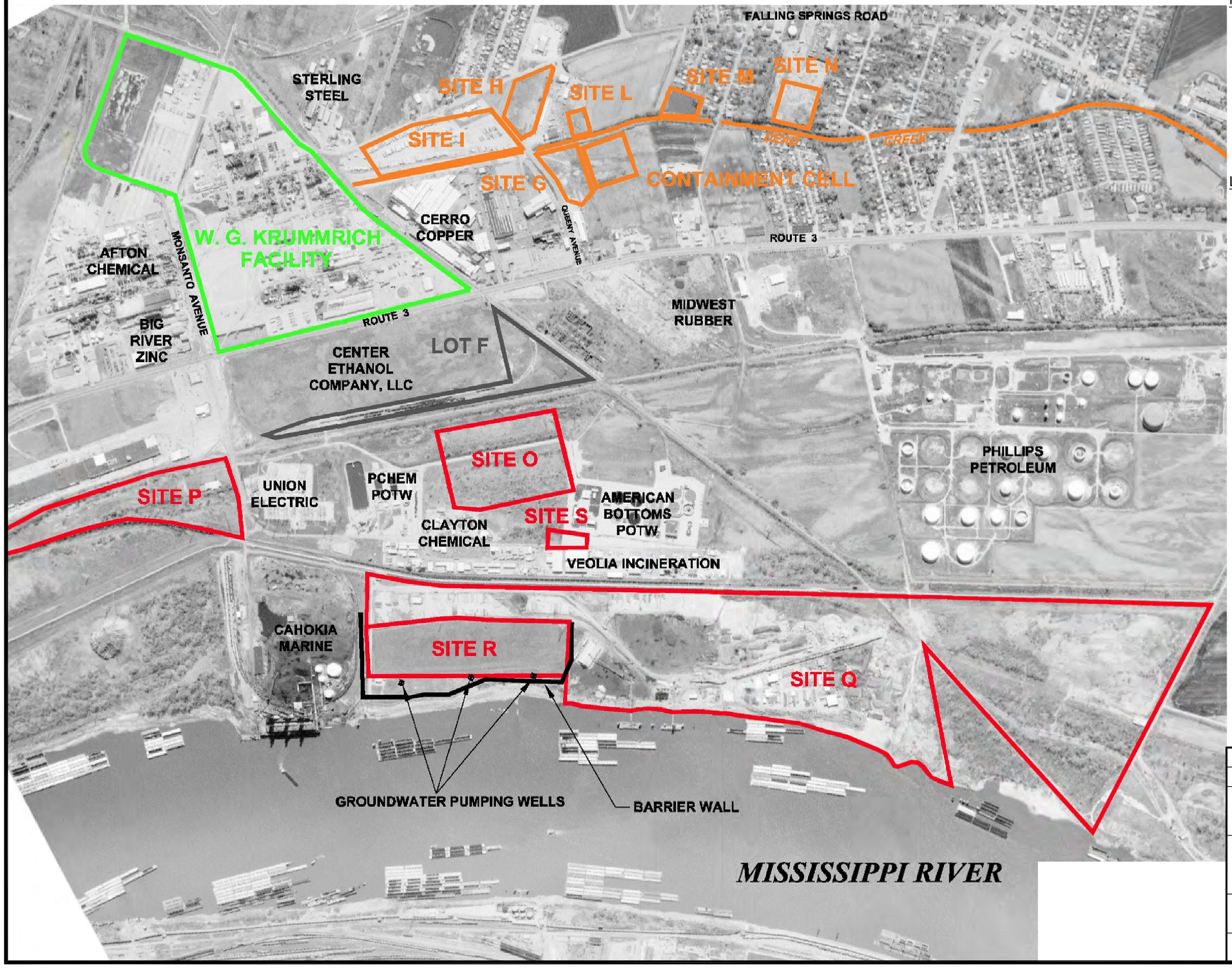
Sample ID	Sample Date	VOC (µg/L)				
		Benzene	Chlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene
BENZENE STORAGE AREA						
BSA-MW-1S-1210	12/6/10	**640,000**	<5000	<5000	<5000	<5000
BSA-MW-2D-1210	12/6/10	**290,000 D**	**2,000**	<1000	<1000	<1000
BSA-MW-3D-1210	12/3/10	**75**	**1,100**	**18**	**17**	**390**
BSA-MW-4D-1210	12/3/10	**30**	**2,300**	<20	<20	**55**
BSA-MW-5D-1210	12/2/10	**<5**	**320**	<5	<5	<5
CHLOROBENZENE PROCESS AREA						
CPA-MW-1D-1210	12/7/10	**8,000**	**19,000**	**19,000**	**1,200**	**11,000**
CPA-MW-2D-1210	12/7/10	**470**	**28,000**	**200**	<200	**6,000**
CPA-MW-2D-1210-AD	12/7/10	**470**	**28,000**	**230**	<200	**6,100**
CPA-MW-3D-1210	12/6/10	**68**	**310**	<5.0	<5.0	<5.0
CPA-MW-4D-1210	12/3/10	**49**	**220**	**2.1**	<2	<2
CPA-MW-5D-1210	12/2/10	<20	**1,200**	<20	<20	<20

Notes:
µg/L = micrograms per liter
< = Result is non-detect, less than the reporting limit given
BOLD indicates concentration greater than the reporting limit
AD = Analytical Duplicate
D = Sample results are obtained from a dilution
NA = Sample not analyzed for select analyte in accordance with Revised LTMP Work Plan

Table 3
Monitored Natural Attenuation Results Summary

Sample ID	Sample Date	Alkalinity (mg/L)	Carbon Dioxide (mg/l)	Chloride (mg/L)	Ethane (ug/L)	Ethylene (ug/l)	Ferrous Iron (mg/L)	Iron (mg/L)	Iron, Dissolved (mg/L)	Manganese (mg/L)	Manganese, Dissolved (mg/l)	Methane (ug/l)	Nitrogen, Nitrate (mg/L)	Sulfate as SO4 (mg/L)	Dissolved Organic Carbon (mg/L)	Total Organic Carbon (mg/L)	ORP (mV)	DO (mg/L)
BENZENE STORAGE AREA																		
BSA-MW-1S-1210	12/6/2010	780	33	170	<0.35	<0.33	3.37	4.2		0.46		6,600	<0.050	<5.0		6.1	-180.00	0
BSA-MW-1S-F(0.2)-1210	12/6/2010								3.5		0.47				6.6			
BSA-MW-2D-1210	12/6/2010	610	43	98	12	<0.33	2.4	2.9		0.45		7,100	<0.050	<5.0		6.2	-150.67	0
BSA-MW-2D-F(0.2)-1210	12/6/2010								2.4		0.45				6.2			
BSA-MW-3D-1210	12/3/2010	470	48	67	1.2	3.3	4.66	12		0.57		240	<0.050	230		4	-149	0
BSA-MW-3D-F(0.2)-1210	12/3/2010								11		0.54				3.9			
BSA-MW-4D-1210	12/3/2010	640	74	160	4	<0.33	>5	9.9		0.73		200	<0.050	29		4.8 R	-236.67	0
BSA-MW-4D-F(0.2)-1210	12/3/2010								9.6		0.71				7.5 R			
BSA-MW-5D-1210	12/2/2010	790	74	270	12	<0.33	>5	14 J		0.48 J		7,000	<0.050	21		5.4 J	-127.67	0
BSA-MW-5D-F(0.2)-1210	12/2/2010								14 J		0.52 J				5.9 J			
CHLOROBENZENE PROCESS AREA																		
CPA-MW-1D-1210	12/7/2010	990	<5.0	130	37	<0.33	2.46	2		0.15		17,000	<0.050	15		16	-124.67	0
CPA-MW-1D-F(0.2)-1210	12/7/2010								1.2		0.13				11			
CPA-MW-2D-1210	12/7/2010	490	9.5	54	4.6	<0.33	>5	6.8		0.46		2,500	<0.050	<5.0		11	-110.67	0
CPA-MW-2D-F(0.2)-1210	12/7/2010								5.9		0.46				11			
CPA-MW-3D-1210	12/6/2010	590	45	160	7.6	<0.33	>5	14		0.7		7,100	<0.050	50		11	-149.33	0
CPA-MW-3D-F(0.2)-1210	12/6/2010								13		0.66				11			
CPA-MW-4D-1210	12/3/2010	770	78	270	11	<0.33	4.71	12		0.28		9,100	<0.050	<5.0		10 J	-142.67	0
CPA-MW-4D-F(0.2)-1210	12/3/2010								11		0.28				11 J			
CPA-MW-5D-1210	12/2/2010	340	130	300	2.6	<0.33	>5	74		2.2		14	<0.050	1,400		3.8	105	4.55
CPA-MW-5D-F(0.2)-1210	12/2/2010								86		2.9				3.9			

Notes:
DO and ORP were measured in the field using YSI 6920 equipped with a flow-thru cell. Values presented represent final measurements before sampling
Ferrous Iron readings were measured in the field using a LaMotte Colorimeter after the groundwater passed through a 0.2 µm filter
(0.2) = Sample was filtered utilizing a 0.2 µm filter during sample collection
J = Estimated value
mg/L - milligrams per liter
mV = millivolts
R = Sample results rejected, the presence or absence of the analyte cannot be verified
ug/L = micrograms per liter
< = Result is non-detect, less than the reporting limit given
A blank space indicated sample not analyzed for select analyte



NOTES:

1. Plan adapted from a drawing titled "Site Location Map" provided by URS.

LEGEND:

- W.G. Krummrich Facility
- Sauget Area #1
- Sauget Area #2

N

0 1,000 2,000

SCALE IN FEET

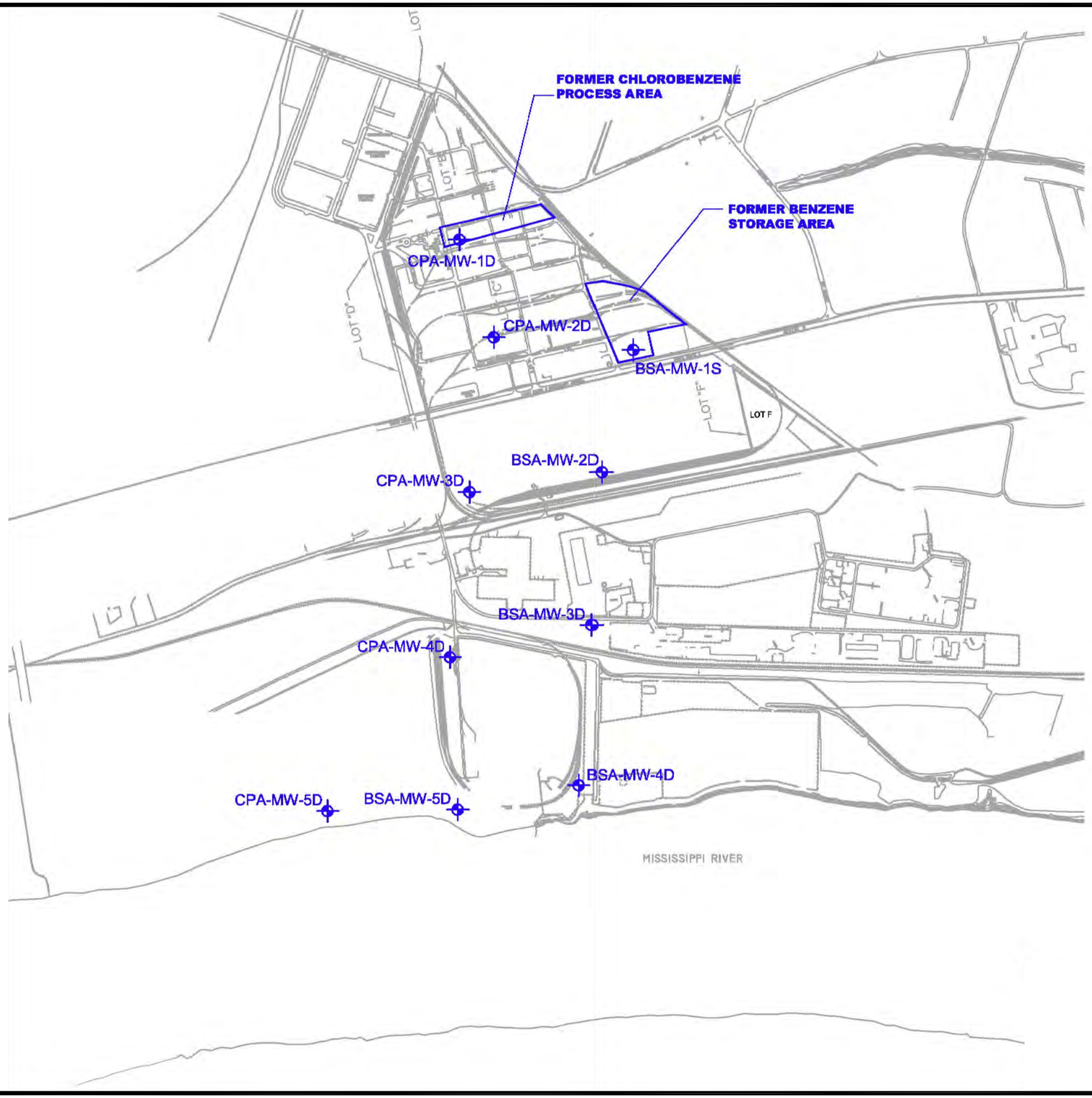
Drawn By: SLC	Ck'd By: AMS	App'vd By: DTK
Date: 03-09-11	Date: 03-09-11	Date: 03-09-11

GEOTECHNOLOGY INC
FROM THE GROUND UP

4Q 2010
Long-Term Monitoring Program
Sauget, Illinois

SITE LOCATION MAP

Project Number J017210.06	PLATE 1



NOTES:

1. Plan adapted from a drawing titled "Long-Term Monitoring Program Well Locations" provided by URS.

2. Refer to Table 1 for Monitoring Well Construction Information.

LEGEND:

Long Term Monitoring Well Location

N

0 1,000 2,000

SCALE IN FEET

Drawn By: SLC	Ck'd By: AMS	App'vd By: DTK
Date: 03-09-11	Date: 03-09-11	Date: 03-09-11

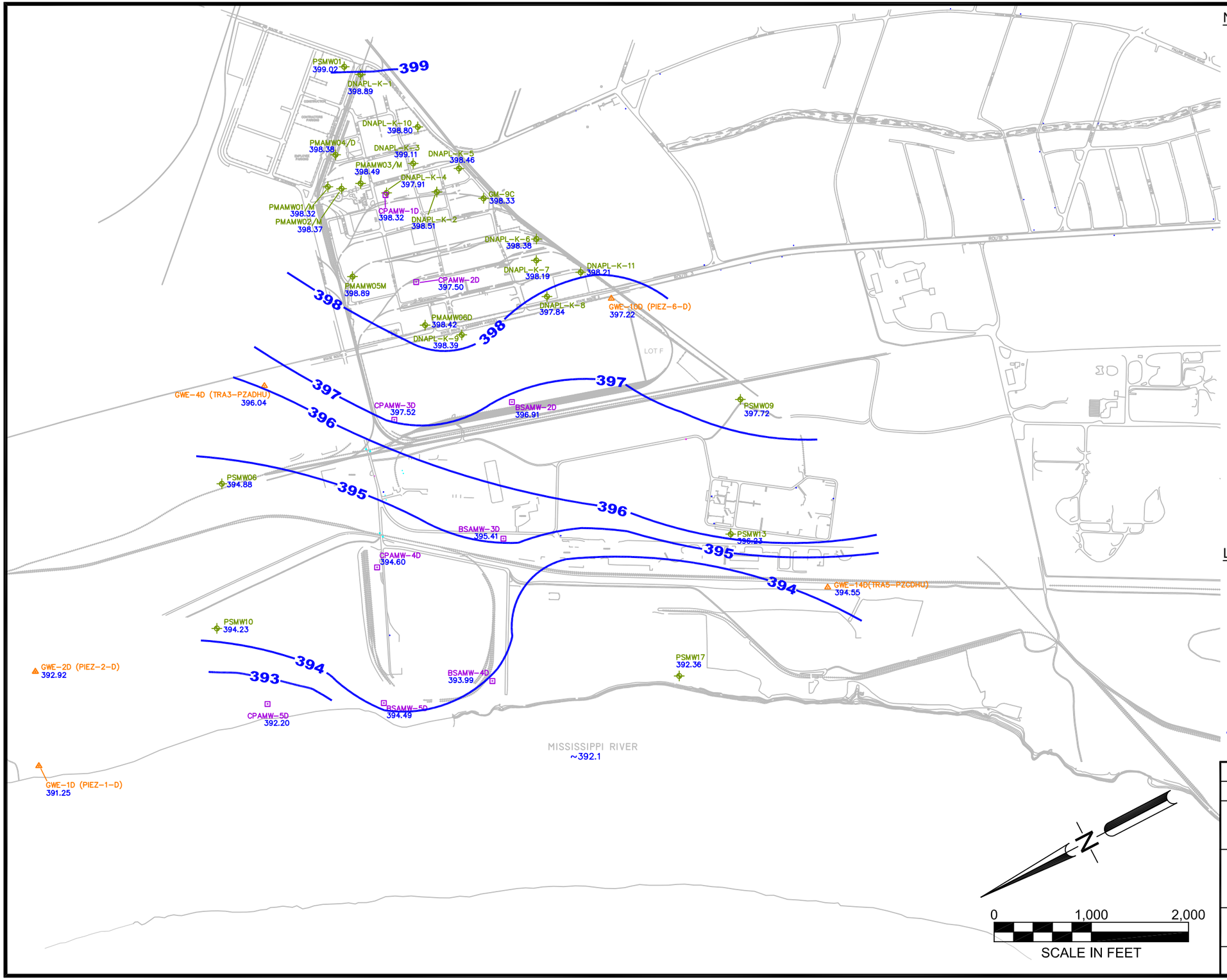
GEOTECHNOLOGY INC
FROM THE GROUND UP

4Q 2010
Long-Term Monitoring Program
Sauget, Illinois

LONG-TERM MONITORING PROGRAM WELL LOCATIONS

Project Number J017210.06

PLATE 2



NOTES:

1. Plan adapted from a drawing titled "Potentiometric Surface Map Middle/Deep Hydrogeologic Unit" provide by URS.

2. Groundwater levels were measured November 22, 2010.

3. Contours generated primarily using surfer software version 8. Some interpretation was done using professional judgment and contour lines were modified by hand.

4. The Mississippi River stage elevation presented on the figure is an average elevation for the time of the gauging event. The information was obtained from the site R Bubbler.

5. Locations with wells screened in both the MHU and DHU utilized the DHU well for development of the potentiometric surface map.

LEGEND:

- Long Term Monitoring Well used for Groundwater Contouring
- Other Monitoring Well used for Goundwater Contouring
- Piezometer Cluster used for Groundwater Contouring
- —402— Groundwater Elevation Contour (ft NAVD)

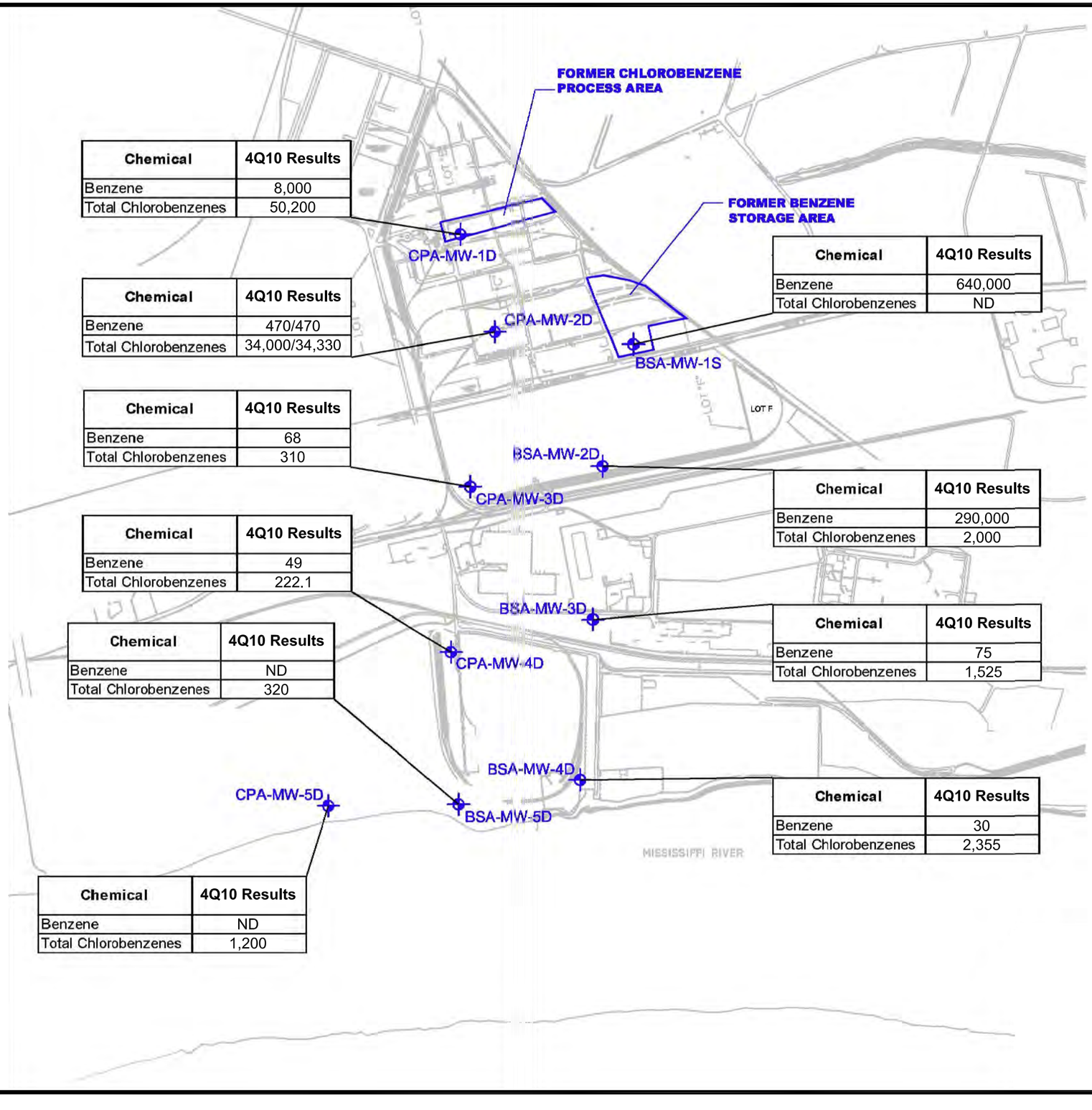
Drawn By: SLC	Ck'd By: AMS	App'vd By: DTK
Date: 03-09-11	Date: 03-09-11	Date: 03-09-11

GEOTECHNOLOGY INC
FROM THE GROUND UP

4Q 2010
Long-Term Monitoring Program
Sauget, Illinois

POTENTIOMETRIC SURFACE MAP MIDDLE/DEEP HYDROGEOLOGIC UNIT

Project Number J017210.06	PLATE 3



Chemical	4Q10 Results
Benzene	8,000
Total Chlorobenzenes	50,200

Chemical	4Q10 Results
Benzene	640,000
Total Chlorobenzenes	ND

Chemical	4Q10 Results
Benzene	470/470
Total Chlorobenzenes	34,000/34,330

Chemical	4Q10 Results
Benzene	68
Total Chlorobenzenes	310

Chemical	4Q10 Results
Benzene	290,000
Total Chlorobenzenes	2,000

Chemical	4Q10 Results
Benzene	49
Total Chlorobenzenes	222.1

Chemical	4Q10 Results
Benzene	75
Total Chlorobenzenes	1,525

Chemical	4Q10 Results
Benzene	ND
Total Chlorobenzenes	320

Chemical	4Q10 Results
Benzene	30
Total Chlorobenzenes	2,355

Chemical	4Q10 Results
Benzene	ND
Total Chlorobenzenes	1,200

NOTES:

1. Plan adapted from a drawing titled "Benzene and Total Chlorobenzenes Results" provided by URS.

2. Total Chlorobenzenes results include the sum of Monochlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, and 1,4-Dichlorobenzene.

3. Results shown are in ug/L.

4. ND denotes analyte or analytes not detected.

5. Multiple sample results indicate a duplicate sample.

LEGEND:

BSA-MW-1D — Long-Term Monitoring Well Location

N

0 1,000 2,000

SCALE IN FEET

Drawn By: SLC	Ck'd By: AMS	App'vd By: DTK
Date: 03-09-11	Date: 03-09-11	Date: 03-09-11

GEOTECHNOLOGY INC
FROM THE GROUND UP

4Q 2010
Long-Term Monitoring Program
Sauget, Illinois

BENZENE AND TOTAL CHLOROBENZENES RESULTS

Project Number J017210.06

PLATE 4

APPENDIX A

GROUNDWATER PURGING AND SAMPLING FORMS

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: WGK LTM 4Q10 PROJECT NUMBER: J017210.06 FIELD PERSONNEL: JENNA VUJIC
DATE: 12-6-10 WEATHER: 20°F SUNNY
MONITORING WELL ID: BSA-MW-01S SAMPLE ID: BSA-MW-01S-1210

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 27.50 ft
Constructed Well Depth (btoc): 27.50 ft
Depth to Water (btock): 14.60 ft
Depth to LNAPL/DNAPL (btoc): - ft
Depth to Top of Screen (btoc): 22.50 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 12.90 ft
If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 25.00 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,
Place Pump at: Total Well Depth -)9.5 X Water Column Height + DNAPL Column Height) = - ft btoc
If Screen Length and/or water column height is <4 ft, Place Pump at: Total Well Depth - 2 ft = - ft btoc
DNPL Present ND If Present, Do Not Sample

Volume of Flow Through Cell): 700 mL
Minimum Purge Volume = 2100 mL
(3 x Flow Through Cell Volume)
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 448 ppm

PURGE DATA

Pump Type: SS HURRICANE

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %

	± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	1416	14.60	PALE YELLOW	SWEET						
1000	1420	14.60			7.28	13.37	0.22	88.3	0.00	-160
2000	1424	14.60			7.31	13.40	0.23	109.8	0.00	-161
4000	1432	14.60			7.17	14.14	0.23	49.8	0.00	-175
6000	1440	14.60	↓		7.19	11.98	0.23	43.3	0.00	-179
8000	1448	14.60	CLEAR		7.16	12.00	0.23	26.2	0.00	-176
10000	1456	14.60			7.16	13.29	0.23	17.1	0.00	-181
11000	1500	14.60			7.17	12.22	0.23	16.7	0.00	-180
12000	1504	14.60	↓	↓	7.16	12.28	0.23	16.6	0.00	-179

Start Time: 1416
Stop Time: 1504
Elapsed Time: 48 min
Average Purge Rate (mL/min): 250mL/min
Water Quality Meter ID: HORIBA U-22
Date Calibrated: 12-3-10

SAMPLING DATA

Sample Date: 12-6-10
Sample Method: LOW FLOW
Sample Time: 1515
Sample Flow Rate: 250 mL/min
Analysis: VOCs, METALS, MNA
QA/QC Samples: none

VOA Vials, No Headspace ☒ Initials: JSV

COMMENTS: MNA- Alkalinity, CO_2, CHLORIDE, FERROUS IRON, METHANE, NITRATE, SULFATE, DOC, TOC
Ferrous Iron (Filtered 0.2 micron) = 3.37 mg/L

1419 rinsed probe ck DO w/ DI water
1423 "

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: WGK LTM 4Q10 | PROJECT NUMBER: J017210.06 | FIELD PERSONNEL: JENNA VUJIC
DATE: 12-6-10 | WEATHER: 20° F SUNNY
MONITORING WELL ID: BSA-MW-02D | SAMPLE ID: BSA-MW-02D-1210

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 77.30 ft
Constructed Well Depth (btoc): 77.05 ft
Depth to Water (btock): 19.00 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 72.05 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 58.30 ft
If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 74.55 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,
Place Pump at: Total Well Depth -)9.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is <4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc
DNPL Present ND If Present, Do Not Sample

Volume of Flow Through Cell): 700 mL
Minimum Purge Volume = 2100 mL
(3 x Flow Through Cell Volume)
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 4.2 ppm

PURGE DATA

Pump Type: SS HURRICANE

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %

	± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
	1227	19.00	GREY	HYDROCARBON						
1000	1231	19.00	↓	↓	6.99	14.54	0.16	60.3	0.00	-162
2000	1235	19.00	↓	↓	7.02	13.94	0.16	40.9	0.00	-166
3000	1239	19.00	↓	↓	7.07	14.90	0.20	50.7	0.00	-169
4000	1243	19.00	CLEAR	↓	7.00	11.84	0.17	33.9	0.00	-167
5000	1247	19.00	↓	↓	6.93	15.20	0.17	21.1	0.00	-157
6000	1251	19.00	↓	↓	6.92	14.89	0.17	16.7	0.00	-153
7000	1255	19.00	↓	↓	6.90	14.67	0.18	12.9	0.00	-152
8000	1259	19.00	↓	↓	6.94	14.62	0.18	14.9	0.00	-151
9000	1303	19.00	↓	↓	7.02	14.88	0.17	13.2	0.00	-149

Start Time: 1227
Stop Time: 1303
Elapsed Time: 36 min
Average Purge Rate (mL/min): 250 mL/min
Water Quality Meter ID: HORIBA U-22
Date Calibrated: 12-6-10

SAMPLING DATA

Sample Date: 12-6-10
Sample Method: LOW FLOW
Sample Time: 1310
Sample Flow Rate: 250 mL/min
Analysis: VOC, METALS, MNA
QA/QC Samples: none

VOA Vials, No Headspace [X] Initials: JSV

COMMENTS: MNA - Alkalinity, CO_2, Chloride, Ferrous Iron, Methane, Nitrate, Sulfate, DOC, TOC

Ferrous Iron (Filtered 0.2 micron) = 2.40 mg/L

1234 rinsed probe — ck'd DO w/ DI water
1251 "
1255 "
1259

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: WGK LTM 4Q10 | PROJECT NUMBER: J017210-06 | FIELD PERSONNEL: JENNA VOJK
DATE: 12-3-10 | WEATHER: 32°F CLOUDY
MONITORING WELL ID: BSA-MW-03D | SAMPLE ID: BSA-MW-03D-1210

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 116.00 ft
Constructed Well Depth (btoc): 114.85 ft
Depth to Water (btock): 20.40 ft
Depth to LNAPL/DNAPL (btoc): - ft
Depth to Top of Screen (btoc): 109.85 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 95.6 ft
If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 112.35 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,
Place Pump at: Total Well Depth -)9.5 X Water Column Height + DNAPL Column Height) = - ft btoc
If Screen Length and/or water column height is <4 ft, Place Pump at: Total Well Depth - 2 ft = - ft btoc
DNPL Present NO If Present, Do Not Sample

Volume of Flow Through Cell): 700 mL
Minimum Purge Volume = (3 x Flow Through Cell Volume) 2100 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: SS HURRICANE

					HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %					
					± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
	1508									
1000	1512	20.40	NONE	NONE	7.11	13.71	0.17	14.90	0.00	-167
2000	1516	20.40			7.13	12.91	0.17	18.30	0.00	-159
3000	1520	20.40			7.19	11.82	0.17	18.20	0.00	-156
4000	1524	20.40			7.11	14.67	0.17	20.80	0.00	-148
5000	1528	20.40			7.08	14.85	0.17	36.80	0.00	-147
6000	1532	20.40	↓	↓	7.13	14.50	0.18	18.20	0.00	-152

Start Time: 1508
Stop Time: 1532
Elapsed Time: 24 min
Average Purge Rate (mL/min): 250
Water Quality Meter ID: Hydrolab U-22
Date Calibrated: 12-3-10

SAMPLING DATA

Sample Date: 12-3-10
Sample Method: LOW FLOW
Sample Time: 1545
Sample Flow Rate: 250 mL/min
Analysis: VOCs, METALS, MNA
QA/QC Samples: EB

VOA Vials, No Headspace ☒ Initials: JSV

COMMENTS: MNA: Alkalinity, CO_2, Chloride, Ferrous Iron, Methane, Nitrate, Sulfate, TOC, DOC
Ferrous Iron (Filtered 0.2 micron) = 4.66 mg/L

1511 rinsed turb probe
1514 "
1520 "
1523 "
1530

Do meter was calibrated and checked w/ bottled drinking water

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: WGK LTM 4Q10D
PROJECT NUMBER: J017210-06
FIELD PERSONNEL: JENNA VUJIC
DATE: 12-3-10
WEATHER: 32°F CLOUDY
MONITORING WELL ID: BSA-MW-4D
SAMPLE ID: BSA MW-04D-1210

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 123.75 ft
Constructed Well Depth (btoc): 123.23 ft
Depth to Water (btock): 31.70 ft
Depth to LNAPL/DNAPL (btoc): - ft
Depth to Top of Screen (btoc): 118.23 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 92.05 ft
If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 120.73 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,
Place Pump at: Total Well Depth -)9.5 X Water Column Height + DNAPL Column Height) = - ft btoc
If Screen Length and/or water column height is <4 ft, Place Pump at: Total Well Depth - 2 ft = - ft btoc
DNPL Present NO If Present, Do Not Sample

Volume of Flow Through Cell): 700 mL
Minimum Purge Volume = 2100 mL
(3 x Flow Through Cell Volume)
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: SS HURRICANE

	HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %					
	± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	0957	31.70								
1000	1004	31.70	GRAY	HYDROCARBON	7.11	14.77	0.19	16.5	0.00	-234
2000	1010	31.70	CLEAR	ODOR	7.09	13.86	0.19	14.7	0.00	-239
3000	1014	31.70	↓	↓	7.09	15.37	0.19	12.6	0.00	-237
4500	1018	31.70	↓	↓	7.08	16.03	0.19	13.8	0.00	-234
							JSV			

Start Time: 0957
Stop Time: 1018
Elapsed Time: 21 min
Average Purge Rate (mL/min): 214.29 mL/min
Water Quality Meter ID: HORIBA U-22
Date Calibrated: 12-3-10

SAMPLING DATA

Sample Date: 12-3-10
Sample Method: LOW FLOW
Sample Time: 1020
Sample Flow Rate: 214.29 mL/min
Analysis: VOCs, METALS, MNA
QA/QC Samples: NONE

VOA Vials, No Headspace [X] Initials: JSV

COMMENTS: MNA: Alkalinity, CO_2, Chloride, Ferrous Iron, Methane, Nitrate, Sulfate, TOC, DOC
Ferrous Iron (Filtered 0.2 micron) = OVER RANGE (>5 mg/L)

* DO meter checked w/ bottled drinking water

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: WGK LTM 4Q10 | PROJECT NUMBER: J017210.06 | FIELD PERSONNEL: JENNA VOSK
DATE: 12-2-10 | WEATHER: 33°F SUNNY
MONITORING WELL ID: BSA-MW-05D | SAMPLE ID: BSA-MW-05D-1210

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 122.45 ft
Constructed Well Depth (btoc): 120.54 ft
Depth to Water (btock): 28.15 ft
Depth to LNAPL/DNAPL (btoc): - ft
Depth to Top of Screen (btoc): 115.54 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 94.30 ft
If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 118.04 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,
Place Pump at: Total Well Depth -)9.5 X Water Column Height + DNAPL Column Height) = - ft btoc
If Screen Length and/or water column height is <4 ft, Place Pump at: Total Well Depth - 2 ft = - ft btoc
DNPL Present ND If Present, Do Not Sample

Volume of Flow Through Cell): 700 mL
Minimum Purge Volume = (3 x Flow Through Cell Volume) 2100 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: SS HURRICANE

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %

	± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	1422									
1000	1428	28.15	none	none	7.01	15.53	0.26	18.1	0.00	-118
2000	1432	28.15			7.02	16.48	0.26	78.6	0.30	-125
3000	1434	28.15			7.04	16.07	0.26	114.0	0.00	-127
4000	1442	28.15			7.04	14.13	0.25	18.5	0.00	-127
5000	1447	28.15			7.03	14.25	0.26	44.2	1.07	-129
6000	1450	28.15			7.06	15.26	0.25	16.9	0.00	-129
7000	1457	28.15			7.03	14.70	0.26	39.9	0.00	-129
8200	1503	28.15			7.04	15.07	0.26	33.3	0.00	-129
9200	1508	28.15			7.05	14.38	0.26	12.6	0.00	-128
10200	1515	28.15	↓	↓	7.06	13.88	0.25	6.8	0.00	-126

Start Time: 1422
Stop Time: 1515
Elapsed Time: 53 min
Average Purge Rate (mL/min): 192.45 mL/min
Water Quality Meter ID: HORIBA U-22
Date Calibrated: 12-2-10

SAMPLING DATA

Sample Date: 12-2-10
Sample Method: LOW FLOW
Sample Time: 1520
Sample Flow Rate: 192.45 mL/min
Analysis: VOCs, Metals, MNA
QA/QC Samples:

VOA Vials, No Headspace [X] Initials: JSV

COMMENTS:
Ferrous Iron (Filtered 0.2 micron) = (overrange greater than 5.00 mg/L)
MNA - ALKALINITY, CO_2, CHLORIDE, FERROUS IRON, METHANE, NITRATE, SULFATE, DOC, TOC

1439 rinsed turb. probe
1449 "
1458 "
1505 "
1513 "

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: WGK-LTM-4Q10 | PROJECT NUMBER: J017210.06 | FIELD PERSONNEL: JENNA VUJIC
DATE: 12-7-10 | WEATHER: 20° F SUNNY
MONITORING WELL ID: CPAMW01D | SAMPLE ID: CPA-MW-01D-1210

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 71.30 ft
Constructed Well Depth (btoc): 70.82 ft
Depth to Water (btock): 9.40 ft
Depth to LNAPL/DNAPL (btoc): - ft
Depth to Top of Screen (btoc): 65.82 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 61.90 ft
If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 68.32 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,
Place Pump at: Total Well Depth -)9.5 X Water Column Height + DNAPL Column Height) = - ft btoc
If Screen Length and/or water column height is <4 ft, Place Pump at: Total Well Depth - 2 ft = - ft btoc
DNPL Present ND If Present, Do Not Sample

Volume of Flow Through Cell): 700 mL
Minimum Purge Volume = 2100 mL
(3 x Flow Through Cell Volume)
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 251 ppm

PURGE DATA

Pump Type: QED BLADDER PUMP

					HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %					
					± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
	1444									
1000	1448	9.40	YELLOW/BROWN	NONE	12.06	15.16	2.7	86.2	3.20	-99
2000	1452	9.40	w hint of RED	SWEET	12.02	13.97	2.6	91.0	3.28	-111
4000	1500	9.40	↓	MOTH	9.86	15.73	1.9	118.0	2.40	-85
5000	1508	9.40	↓	BALLS	9.27	15.69	2.2	156.0	0.00	-114
6000	1513	9.40	↓	↓	9.18	15.82	2.3	274.0	0.00	-129
7000	1517	9.40	↓	↓	9.17	15.79	2.3	379.0	0.00	-131

Start Time: 1444
Stop Time: 1517
Elapsed Time: 33 min
Average Purge Rate (mL/min): 212.12 mL/min
Water Quality Meter ID: HORIBA U-22
Date Calibrated: 12-7-10

SAMPLING DATA

Sample Date: 12-7-10
Sample Method: LOW FLOW
Sample Time: 1530
Sample Flow Rate: 212.12 mL/min
Analysis: VOCs, METALS, MNA
QA/QC Samples: none

VOA Vials, No Headspace [X] Initials: JSV

COMMENTS: MNA-Alkalinity, CO_2, CHLORIDE, FERROUS IRON, METHANE, NITRATE SULFATE, DOC, TDC
Ferrous Iron (Filtered 0.2 micron) = 2.46 mg/L

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: WGK-CTM-4Q10 PROJECT NUMBER: J017210.06 FIELD PERSONNEL: JENNA VUKIC
DATE: 12-7-10 WEATHER: 20°F SUNNY
MONITORING WELL ID: CPA-MW-02D SAMPLE ID: CPA-MW-02D-1210

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 105.30 ft
Constructed Well Depth (btoc): 104.65 ft
Depth to Water (btock): 12.20 ft
Depth to LNAPL/DNAPL (btoc): - ft
Depth to Top of Screen (btoc): 99.65 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 93.10 ft
If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 102.15 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,
Place Pump at: Total Well Depth -)9.5 X Water Column Height + DNAPL Column Height) = - ft btoc
If Screen Length and/or water column height is <4 ft, Place Pump at: Total Well Depth - 2 ft = - ft btoc
DNPL Present ND If Present, Do Not Sample

Volume of Flow Through Cell): 700 mL
Minimum Purge Volume = (3 x Flow Through Cell Volume) 2100 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: QED BLADDER PUMP

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %

	± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	1120	12.20	NONE	NONE						
1000	1125	12.20			7.06	16.68	1.1	56.8	2.44	-88
2000	1130	12.20			7.04	17.20	1.2	43.9	0.51	-104
3000	1135	12.20			7.06	16.89	1.3	42.5	0.00	-109
4000	1140	12.20			7.06	16.79	1.3	43.8	0.00	-111
5000	1145	12.20			7.06	16.94	1.4	48.4	0.00	-112
						JSV				JSV

Start Time: 1120
Stop Time: 1145
Elapsed Time: 25 min
Average Purge Rate (mL/min): 200 mL/min
Water Quality Meter ID: HORIBA U-22
Date Calibrated: 12-7-10

SAMPLING DATA

Sample Date: 12-7-10
Sample Method: LOW FLOW
Sample Time: 1200
Sample Flow Rate: 200 mL/min
Analysis: VOCs, METALS, MNA
QA/QC Samples: AD

VOA Vials, No Headspace [X] Initials: JSV

COMMENTS: MNA - Alkalinity, CO_2, Chloride, Ferrous Iron, Methane, Nitrate, Sulfate, DOC, TOC
Ferrous Iron (Filtered 0.2 micron) = OVERRANGE (>5.00 mg/L)

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: WGK-LTM 4Q10 | PROJECT NUMBER: J017210.06 | FIELD PERSONNEL: JENNA VUNL
DATE: 12-6-10 | WEATHER: 20°F SUNNY
MONITORING WELL ID: CPA-MW-03D | SAMPLE ID: CPA-MW-03D-1210

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 114.45 ft
Constructed Well Depth (btoc): 113.00 ft
Depth to Water (btock): 13.85 ft
Depth to LNAPL/DNAPL (btoc): - ft
Depth to Top of Screen (btoc): 108.00 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 99.15 ft
If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 110.50 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,
Place Pump at: Total Well Depth -)9.5 X Water Column Height + DNAPL Column Height) = - ft btoc
If Screen Length and/or water column height is <4 ft, Place Pump at: Total Well Depth - 2 ft = - ft btoc
DNPL Present NO If Present, Do Not Sample

Volume of Flow Through Cell): 700 mL
Minimum Purge Volume = (3 x Flow Through Cell Volume) 2100 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.4 ppm

PURGE DATA

Pump Type: SS HURRICANE

					HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %					
					± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
	1003	13.85								
1000	1007	13.85	NONE	NONE	6.64	14.08	0.17	48.9	0.00	-130
2000	1012	13.85	↓	↓	6.63	15.58	0.17	46.1	1.65	-135
3000	1016	13.85			6.66	16.20	0.18	115.0	1.85	-141
5000	1024	13.85			6.76	15.82	0.20	37.0	0.03	-152
6000	1028	13.85			6.69	15.86	0.19	32.3	0.00	-145
7000	1032	13.85			6.73	15.90	0.20	30.8	0.00	-147
8000	1036	13.85			6.71	15.92	0.20	33.6	0.00	-146
9000	1040	13.85	↓	↓	6.79	15.46	0.20	33.2	0.00	-155

Start Time: 1003
Stop Time: 1040
Elapsed Time: 27 min
Average Purge Rate (mL/min): 250 mL/min
Water Quality Meter ID: HORIBA U-22
Date Calibrated: 12-3-10

SAMPLING DATA

Sample Date: 12-6-10
Sample Method: LOW FLOW
Sample Time: 1045
Sample Flow Rate: 250 mL/min
Analysis: VOCs, METALS, MNA
QA/QC Samples: NONE

VOA Vials, No Headspace [X] Initials: JSV

COMMENTS: MNA- Alkalinity, CO_2, Chloride, Ferrous Iron, Methane, Nitrate, Sulfate, DOC, TOC.
Ferrous Iron (Filtered 0.2 micron) = OVERRANGE (>5.0 mg/L)

1023 rinsed probe
1032 "
1036 "

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: WGK LTM 4Q10 | PROJECT NUMBER: J017210.06 | FIELD PERSONNEL: JENNA VUJIC
DATE: 12-3-10 | WEATHER: 32°F CLOUDY
MONITORING WELL ID: CPA-MW-04D | SAMPLE ID: CPA-MW-04D-1210

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 122.40 ft
Constructed Well Depth (btoc): 121.07 ft
Depth to Water (btock): 26.85 ft
Depth to LNAPL/DNAPL (btoc): - ft
Depth to Top of Screen (btoc): 116.07 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 95.55 ft
If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 118.57 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,
Place Pump at: Total Well Depth -)9.5 X Water Column Height + DNAPL Column Height) = - ft btoc
If Screen Length and/or water column height is <4 ft, Place Pump at: Total Well Depth - 2 ft = - ft btoc
DNPL Present NO If Present, Do Not Sample

Volume of Flow Through Cell): 700 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 2100 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: SS HURRICANE

					HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %					
					± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
	1231	26.85	NONE	NONE						
1000	1234	26.85			7.10	15.37	0.24	20.5	0.00	-144
2000	1238	26.85			7.11	13.89	0.24	19.7	0.00	-140
3000	1243	26.85			7.06	14.49	0.24	12.1	0.00	-143
4000	1247	26.85			7.10	14.12	0.24	12.0	0.00	-143
5000	1251	26.85			7.10	13.32	0.24	9.3	0.00	-142
6000	1255	26.85	↓	↓	7.11	13.67	0.25	7.5	0.00	-143

Start Time: 1231
Stop Time: 1255
Elapsed Time: 24 min
Average Purge Rate (mL/min): 250 mL/min
Water Quality Meter ID: HORIBA U-22
Date Calibrated: 12-3-10

SAMPLING DATA

Sample Date: 12-3-10
Sample Method: LOW FLOW
Sample Time: 1300
Sample Flow Rate: 250 mL/min
Analysis: VOCs, Metals, MNA
QA/QC Samples:

VOA Vials, No Headspace [X] Initials: JSV

COMMENTS: MNA: Alkalinity, CO_2, Chloride, Ferrous Iron, Methane, Nitrate, Sulfate, TDC, TOC
Ferrous Iron (Filtered 0.2 micron) = 4.71 mg/L

1238 rinsed probe (turbidity)
1247 "
1251 "
1255 "

*DO ck'd at same corresponding times

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: WGK LTM 4Q10 | PROJECT NUMBER: J017210.06 | FIELD PERSONNEL: JENNA NUNL
DATE: 12-2-10 | WEATHER: 33°F CLOUDY
MONITORING WELL ID: CPA-MW-05D | SAMPLE ID: CPA-MW-05D-1210

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 114.75 ft
Constructed Well Depth (btoc): 114.75 ft
Depth to Water (btock): 23.20 ft
Depth to LNAPL/DNAPL (btoc): – ft
Depth to Top of Screen (btoc): 109.75 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 91.55 ft
If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 112.25 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,
Place Pump at: Total Well Depth -)9.5 X Water Column Height + DNAPL Column Height) = – ft btoc
If Screen Length and/or water column height is <4 ft, Place Pump at: Total Well Depth - 2 ft = – ft btoc
DNPL Present NO If Present, Do Not Sample

Volume of Flow Through Cell): 700 mL
Minimum Purge Volume = (3 x Flow Through Cell Volume) 2100 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA
Pump Type: SS HURRICANE

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %

± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	1046									
1000	1051	23.20	none	none	6.48	14.20	0.37	12.4	6.07	-94
2500	1058	23.20	↓	↓	6.57	13.90	0.40	22.1	5.31	-105
3500	1107	23.20			6.56	13.71	0.39	26.2	4.79	-105
4500	1110	23.20			6.56	13.96	0.40	23.2	4.71	-105
5500	1117	23.20			6.58	13.29	0.40	23.6	4.60	-105
6500	1123	23.20			6.57	13.06	0.40	25.5	4.33	-105

Start Time: 1046
Stop Time: 1123
Elapsed Time: 37 min
Average Purge Rate (mL/min): 175.68
Water Quality Meter ID: HORIBA U-22
Date Calibrated: 12-2-10

SAMPLING DATA

Sample Date: 12-2-10
Sample Method: LOW FLOW
Sample Time: 1145
Sample Flow Rate: 175.68 mL/min
Analysis: VOCs, Metals, MNA
QA/QC Samples:

VOA Vials, No Headspace [X] Initials: JSV

COMMENTS: MNA- Alkalinity, CO_2, CHLORIDE, FERROUS IRON, METHANE, NITRATE, SULFATE, DOC, TOC
Ferrous Iron (Filtered 0.2 micron) = (OVERANGE greater than 5.00 mg/L)

APPENDIX B

CHAINS-OF-CUSTODY

Serial Number 035192

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
WGK LTM 4Q10		IL
TAL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
LIDYA GUZIA		
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
GM RINALDI		314 674 8808
CLIENT NAME	CLIENT E-MAIL	
SOLUTIA, INC	gmrina@solutia.com	
CLIENT ADDRESS		
575 MARYVILLE CENTER DR. ST. LOUIS MO 63141		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ⊗
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	MATRIX: COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: VOCs by 8260 — NUMBER OF CONTAINERS SUBMITTED: HCl	Total Fe/Mn by 6010B — HNO3	Alkicd2 by 310.1 — NONE	Chloride by 325.2 Sulfate by 375.4 — NONE	Methane, Ethane Ethene by RSK175 — HCl	Nitrate by 353.2 — H2SO4	TOC by 415.1 — HCl	Dissolved Fe/Mn by 6010B — HNO3	DOC by 415.1 — HCl	REMARKS
12-2-10	1145	CPA MW-05D-1210	G	X				3	1	1	1	3	2	1			
12-2-10	1145	CPA MW-05D-F(0.2)-1210	G	X											1	1	Filtered Sample
12-2-10	1145	CPA MW-05D-1210-MS	G	X				3									
12-2-10	1145	CPA MW-05D-1210-MSD	G	X				3									
12-2-10	1520	BSA-MW-5D-1210	G	X				3	1	1	1	3	2	1			
12-2-10	1520	BSA-MW-5D-F(0.2)-1210	G	X											1	1	Filtered sample
12-2-10	1520	4Q10 LTM Trip Blk #1	G	X				2									
								2									

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	12-2-10	1900						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Beth A Daughtry	12/3/10	0924	YES ○ NO ○		10378	Temp 2.1

TAL 8240-680 (1008)

Serial Number 033944

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
WGK-LTM-4Q10		IL
TAL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
GM Rinaldi		
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
GM RINALDI	314-674-3312	314-674-8868
CLIENT NAME	CLIENT E-MAIL	
SOLUTIA INC		
CLIENT ADDRESS		
575 MARYVILLE CTR DR, ST LOUIS MO 63141		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ⊗
DATE DUE
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	MATRIX: AQUEOUS (WATER)	MATRIX: SOLID OR SEMISOLID	MATRIX: AIR	MATRIX: NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	VOC 8260 HCl	TOTAL Fe/Mn 6010B HNO3	Alk a/CO2 310.1 PRESERVATIVE	Chloride 325.2	Sulfate 375.4	Methane RSK 175 Ethane Ethene	Nitrate 353.2 H2SO4	TDC 415.1 HCl	Diss Fe/Mn 6010B HNO3	DOC 415.1 HCl	REMARKS
								NUMBER OF CONTAINERS SUBMITTED										
12-3-10	1020	BSA-MW-04D-1210	G	A				3	1	1	1	3	2	1				
	1020	BSA-MW-04D-F(0.2)-1210	G	A												1	1	Filtered
	1300	CPA-MW-04D-1210	G	A				3	1	1	1	3	2	1				
	1300	CPA-MW-04D-F(0.2)-1210	G	A												1	1	Filtered
	1545	BSA-MW-03D-1210	G	A				3	1	1	1	3	2	1				
	1545	BSA-MW-03D-F(0.2)-1210	G	A												1	1	
	1545	BSA-MW-03D-1210-EB	G	A				3										
12-3-10	1545	4Q10 LTM Trip blank #2	G	A				2										

Page 933 of 935

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	12-3-10	1900						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Beth A Daughtry	12/4/10	1023	YES ○ NO ○		680-63736	Temp 1.8

TA1.8240-680 (1008)

Serial Number 055188

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PAGE 1 OF 1

PROJECT REFERENCE: WGK LTM 4Q10	PROJECT NO.	PROJECT LOCATION (STATE): IL	
TAL (LAB) PROJECT MANAGER: GM RINALDI	P.O. NUMBER	CONTRACT NO.	
CLIENT (SITE) PM: GM RINALDI	CLIENT PHONE: 314-674-3312	CLIENT FAX: 314-674-8820	
CLIENT NAME: SOLUTIA, INC	CLIENT E-MAIL: gmrinaldi@solutia.com		
CLIENT ADDRESS: 575 MARYVILLE CENTRE DR. ST LOUIS, MO 63141			
COMPANY CONTRACTING THIS WORK (if applicable)			

STANDARD REPORT DELIVERY ⊗
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

Page	SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
	12-6-10	1045	CPA-MW-03D-1210	G	A				3	
	12-6-10	1045	CPA-MW-03D-F(0.2)-1210	G	A					Filtered
	12-6-10	1310	BSA-MW-02D-1210	G	A				3	
	12-6-10	1310	BSA-MW-02D-F(0.2)-1210	G	A					Filtered
	12-6-10	1515	BSA-MW-01S-1210	G	A				3	
	12-6-10	1515	BSA-MW-01S-(F(0.2)-1210	G	A					Filtered
	12-6-10	—	TRIP BLANK #3 LTM 4Q10		A				2	

Col	Preservative
8260 VOC	HCl
Total Fe/Mn 6010B	HNO3
Alk/Cl/SO4 310.1	None
Chloride 325.2 / Sulfate 375.4	None
Methane RSK 175 / Ethane/Ethene	HCl
Nitrate 353.2	H2SO4
TDC 415.1	HCl
Diss Fe/Mn 6010B	HNO3
DOC 415.1	HCl

PRESERVATION VERIFIED

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	12-6-10	1700						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES ○ NO ○	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
	12/7/10	0935			630-63778	2.4°C

TA1.8240-680 (1008)

Serial Number 033941

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
WGK-LTM-4Q10		IL
TAL (LAB) PROJECT MANAGER: GM LIDYA GULIZIA	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: GM RINALDI	CLIENT PHONE: 314-674-3312	CLIENT FAX: 314-674-8808
CLIENT NAME: SOLUTIA, INC	CLIENT E-MAIL: gmrinal@solutia.com	
CLIENT ADDRESS: 575 MARYVILLE CENTER DR ST. LOUIS, MO 63141		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ⊗
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	MATRIX: AQUEOUS (WATER)	MATRIX: SOLID OR SEMISOLID	MATRIX: AIR	MATRIX: NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: VOC 8260 (HCl)	TOTAL Fe/Mn 6010B (HNO3)	Alka/CO_2 310.1 (none)	Chloride 325.2 / Sulfate 375.4 (none)	Methane RSK 175 / Ethane Ethene (none)	Nitrate 353.2 (H_2SO_4)	TOC 415.1 (HCl)	Diss Fe/Mn 6010B (HNO3)	DOC 415.1 (HCl)	REMARKS
12-7-10	1200	CPA-MW-02D-1210	G	A				3	1	1	1	3	2	1			
	1200	CPA-MW-02D-F(0.2)-1210	G	A											1	1	Filtered
	1200	CPA-MW-02D-1210-AD	G	A				3									
	1530	CPA-MW-01D-1210	G	A				3	1	1	1	3	2	1			
	1530	CPA-MW-01D-F(0.2)-120	G	A											1	1	Filtered
	—	4Q10 LTM TRIP BLANK #3															

Page 927 of 927

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	12-7-10	1700						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
	12/8/10	0945	YES ○ NO ○		680-63827	0.4°C

TAL 8240-680 (1008)

APPENDIX C

QUALITY ASSURANCE REPORT

FOURTH QUARTER 2010
LONG-TERM MONITORING PROGRAM
QUALITY ASSURANCE REPORT
SOLUTIA INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

Prepared for:

SOLUTIA INC.
St. Louis, Missouri

Prepared by:

GEOTECHNOLOGY, INC.
St. Louis, Missouri

Geotechnology, Inc. Report No. J017210.06

March 15, 2011

J017210.06

FOURTH QUARTER 2010
LONG-TERM MONITORING PROGRAM
QUALITY ASSURANCE REPORT
SOLUTIA INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

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J017210.06

FOURTH QUARTER 2010
LONG-TERM MONITORING PROGRAM
QUALITY ASSURANCE REPORT
SOLUTIA INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

1.0 INTRODUCTION

This Quality Assurance Report presents the findings of a review of analytical data for groundwater samples collected in December of 2010 at the Solutia W.G. Krummrich plant as part of the 4th Quarter 2010 Long-Term Monitoring Program. The samples were collected by Geotechnology, Inc. (Geotechnology) personnel and analyzed by TestAmerica Laboratories located in Savannah, Georgia using USEPA methodologies. Groundwater samples were analyzed for volatile organic compounds (VOCs), metals, dissolved gases, and general chemistry parameters.

Geotechnology subcontracted with the M.J.W. Corporation to conduct third party Level III and Level IV data validation. One hundred percent of the data was subjected to a data quality review (Level III validation.) M.J.W. Corporation selected eight random groundwater samples for Level IV data validation (CPA-MW-5D-1210, CPA-MW-5D-F(0.2)-1210, CAP-MW-5D-1210, BSA-MW-5D-F(0.2)-1210, BSA-MW-4D-1210, BSA-MW-4D-F(0.2)-1210, CPA-MW-4D-1210, CPA-MW-4D-F(0.2)-1210.) The Level III and Level IV reviews were performed in order to confirm that the analytical data provided by TestAmerica were acceptable in quality for their intended use.

A total of 14 samples (ten investigative groundwater samples, one field duplicate, one matrix spike and matrix spike duplicate (MS/MSD) pair, and one equipment blank) were analyzed by TestAmerica. In addition, three trip blank samples were included in the cooler shipments that contained groundwater samples for VOC analyses and were analyzed for VOCs. These samples were analyzed as part of Sample Delivery Group (SDG) KPS060 utilizing the following USEPA SW-846 Methods:

- Method 8260B for VOCs (Benzene, Chlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene and 1,4-Dichlorobenzene)
- Method 6010 for total and dissolved iron and manganese

Samples were also analyzed for dissolved gases and general chemistry parameters by the following methods:

- Method RSK-175 for dissolved gases (Ethane, Ethylene and Methane)
- Method 325.2 for Chloride

- Method 353.2 for Nitrogen, Nitrate
- Method 375.4 for Sulfate
- Method 415.1 for Total and Dissolved Organic Carbon
- Method 310.1 for Alkalinity and Carbon Dioxide

Samples were reviewed following procedures outlined in the USEPA National Functional Guidelines for Superfund Organic Methods Data Review (USEPA 2008) and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004, and the Revised Long-Term Monitoring Program (LTMP) Work Plan (Solutia 2009).

The above guidelines provided the criteria to review the data. Additional quantitative criteria are given in the analytical methods. Data was qualified based on the data quality review. Qualifiers assigned indicate data that did not meet acceptance criteria and for which 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.
E	Results exceeded calibration range
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
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 – Geotechnology (MJW Corporation) Data Qualifiers

MJW Corp. Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a “tentative identification.”
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.
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 with the exception of rejected **(R)** flagged data, including estimated detect/nondetect **(J/UJ)** values was 95.6 percent, which does meet the completeness of goal of 95 percent.

The data review included evaluation of the following criteria:

Organics

- Receipt condition and sample holding times
- Laboratory method blanks, and field equipment blank samples
- Surrogate spike recoveries
- Laboratory control sample (LCS) recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) sample recoveries and relative percent difference (RPD)
- Field duplicate results
- Results reported from dilutions
- Internal standard responses
- Mass spectrometer tuning
- Calibration
- Compound identification
- Other problems/documentation

Inorganics

- 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 report 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 four coolers were received by the laboratory at temperatures within the 4°C ± 2°C criteria. Samples received were in good condition; therefore, no qualification of data was required.

KPS061-Three VOA vials for sample CPA-MW-04D-1210 were received with headspace in them. The pH was adjusted for TOC or DOC containers (as applicable) to pH<2 for the following samples after receipt at the lab: CPA-MW-5D-1210, BSA-MW-5D-1210, BSA-MW-5D-F(0.2)-1210, and CPA-MW-4D-F90.2)-1210.

KPS062-All samples received on 12/7/10 for TOC and DOC were received at pH.2. Additional acid was added upon receipt prior to analysis. Samples for CPA-MW-1D received on 12/8/10 for TOC and DOC were received at PH>2. Additional acid was added upon receipt prior to analysis. The dissolved metals sample for CPA-MW-1D was received at pH greater than 2. Additional acid was added upon receipt prior to analysis.

3.0 LABORATORY METHOD AND EQUIPMENT BLANK SAMPLES

Laboratory method blank samples evaluate the existence and magnitude of contamination problems resulting from laboratory activities. All laboratory method blank samples were analyzed at the method prescribed frequencies. No analytes were detected in the method blank; therefore, no qualification of date was required.

Equipment blank samples are used to assess the effectiveness of equipment decontamination procedures. No analytes were detected in the equipment blank sample.

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 VOCs 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. 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 LCS recoveries were within evaluation criteria. No qualification of data was required.

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 required to be collected at a frequency of one per 20 investigative samples in accordance with the work plan (one per 20 investigative samples or 5%). Geotechnology submitted one MS/MSD sample set for ten investigative samples and, therefore, met the work plan frequency requirement.

No qualifications were made to the data if the MS/MSD percent recoveries were zero due to dilutions or if the Relative Percent Difference (RPD) was the only factor outside of criteria. Also, USEPA National Functional Guidelines for Superfund Organic Methods Data Review (2008) states that organic data does not need qualification based on MS/MSD criteria alone. Therefore, if recoveries were outside evaluation criteria due to matrix interference or abundance of analytes, no qualifiers were assigned unless these analytes had other quality control criteria outside evaluation criteria.

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 ten investigative samples. This satisfies the requirement in the work plan (one per 10 investigative samples or 10 percent). Field duplicate results were within evaluation criteria. No qualifications of data were 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. For the VOCs, the IS areas must be within -50 percent to +100 percent of the preceding calibration verification (CV) IS value. Also, the IS retention times must be within 30 seconds of the preceding IS CV retention time.

The internal standards area responses for VOCs were verified for the data reviews. IS responses met the criteria as described above. No qualifications of data were required.

9.0 RESULTS REPORTED FROM DILUTIONS

The analytical testing result for Benzene for sample BSA-MW-2D-1210 was initially reported as exceeding the calibration range, which was qualified with an E. The laboratory subsequently diluted and re-analyzed the sample, and that result was qualified with a D.

10. MASS SPECTROMETER TUNING

Instrument performance was determined to be satisfactory. No qualifications of data were required.

11.0 CALIBRATION

Percent Relative Standard Deviation (%RSD) is used to indicate the stability of a specific compound response factor over increasing concentration. Percent D (%D) is a measure of the instrument's daily performance. Percent RSD must be <30% and Percent D must be <25%. No qualifications of data were required.

12.0 COMPOUND IDENTIFICATION

Compound identification was determined to be satisfactory. No qualifications of data were required.

13.0 OTHER PROBLEMS/DOCUMENTATION

The analytical testing results for Total Organic Carbon (TOC) and Dissolved Organic Carbon (DOC) were rejected for sample BSA-MW-4D-1210 because the DOC result was greater than the TOC result for the sample by at least 50%, which is not possible. The validator could not establish whether the error occurred in the field filtering or in the laboratory analyses. In addition, the TOC and DOC results for sample BSA-MW-5D-1210 have been qualified has estimated, because the dissolved result is greater than the total result by at least 10%. The dissolved and total Iron and Manganese results for sample CPA-MW-5D-1210 have been qualified as estimated because the dissolved result is greater than the total result by at least 10%. The sample results qualified as rejected by MJW Corporation are summarized in the table below.

Sample ID	Parameter	Analyte	Qualification
BSA-MW-4D-F(0.2)-1210	Inorganics	DOC	R
BSA-MW-4D-1210	Inorganics	TOC	R
BSA-MW-5D-F(0.2)-1210	Inorganics	DOC	J
BSA-MW-5D-1210	Inorganics	TOC	J
CPA-MW-5D-1210	Inorganics	Iron	J
CPA-MW-5D-F(0.2)-1210	Inorganics	Iron	J
CPA-MW-5D-1210	Inorganics	Manganese	J
CPA-MW-5D-F90.2)-1210	Inorganics	Manganese	J

APPENDIX D

GROUNDWATER ANALYTICAL RESULTS
(WITH DATA REVIEW SHEETS)

SDG KPS061

Results of Samples from Monitoring Wells:

BSA-MW-3D
BSA-MW-4D
BSA-MW-5D
CPA-MW-4D
CPA-MW-5D

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 680-63678-1

SDG Number: KPS061

Job Description: WGK LTM - GW 4Q10 - DEC 2010

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

Attention: Mr. Jerry Rinaldi

Lidya Gulizia

Approved for release.
Lidya Gulizia
Project Manager I
1/11/2011 5:38 PM

Lidya Gulizia
Project Manager I
lidya.gulizia@testamericainc.com
01/11/2011

cc: Mr. Duane Kreuger

The test results in this report meet NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted. Results pertain only to samples listed in this report. This report may not be reproduced, except in full, without the written approval of the laboratory. Questions should be directed to the person who signed this report.

Savannah Certifications and ID #s: A2LA: 0399.01; AL: 41450; ARDEQ: 88-0692; ARDOH; CA: 03217CA; CO; CT: PH0161; DE; FL: E87052; GA: 803; Guam; HI; IL: 200022; IN; IA: 353; KS: E-10322; KY EPPC: 90084; KY UST; LA DEQ: 30690; LA DHH: LA080008; ME: 2008022; MD: 250; MA: M-GA006; MI: 9925; MS; NFESC: 249; NV: GA00006; NJ: GA769; NM; NY: 10842; NC DWQ: 269; NC DHHS: 13701; PA: 68-00474; PR: GA00006; RI: LAO00244; SC: 98001001; TN: TN0296; TX: T104704185; USEPA: GA00006; VT: VT-87052; VA: 00302; WA; WV DEP: 094; WV DHHR: 9950 C; WI DNR: 999819810; WY/EPAR8: 8TMS-Q

TestAmerica Laboratories, Inc.
TestAmerica Savannah 5102 LaRoche Avenue, Savannah, GA 31404
Tel (912) 354-7858 Fax (912) 352-0165 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

1/11/11

Job Narrative
680-63678-1 / SDG KPS061

Receipt
Method(s) 8260B: The following sample(s) was received with headspace in the sample vial: CPA-MW-04D-1210 (680-63736-3). The three HCL vials headspace in them.

The pH was adjusted for TOC or DOC containers (as applicable) to pH <2 for the following samples after receipt at the lab: CPAMW-05D-1210 (680-63678-1), BSA-MW-5D-1210 (680-63678-3), BSA-MW-5d-F(0.2)-1210 (680-63678-4) and CPA-MW-04D-F(0.2) -1210 (680-63736-4).

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

GC/MS 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: Due to the high concentration of chloride, the matrix spike / matrix spike duplicate (MS/MSD) for batch 189417 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

No other analytical or quality issues were noted.

Comments
No additional comments.

3/1/11

METHOD SUMMARY

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL SAV	SW846 8260B	
Purge and Trap	TAL SAV		SW846 5030B
Dissolved Gases (GC)	TAL SAV	RSK RSK-175	
Metals (ICP)	TAL SAV	SW846 6010B	
Preparation, Total Recoverable or Dissolved Metals	TAL SAV		SW846 3005A
Metals (ICP)	TAL SAV	SW846 6010B	
Preparation, Total Recoverable or Dissolved Metals	TAL SAV		SW846 3005A
Sample Filtration, Field			FIELD_FLTRD
Alkalinity	TAL SAV	MCAWW 310.1	
Chloride	TAL SAV	MCAWW 325.2	
Nitrogen, Nitrate-Nitrite	TAL SAV	MCAWW 353.2	
Sulfate	TAL SAV	MCAWW 375.4	
DOC	TAL SAV	MCAWW 415.1	
Sample Filtration, Field			FIELD_FLTRD
TOC	TAL SAV	MCAWW 415.1	

Lab References:

TAL SAV = TestAmerica Savannah

Method 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.

3/1/11

METHOD / ANALYST SUMMARY

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method	Analyst	Analyst ID
SW846 8260B	Bearden, Robert	RB
SW846 8260B	Lanier, Carolyn	CL
RSK RSK-175	Moncrief, Amy J	AJM
SW846 6010B	Bland, Brian	BCB
MCAWW 310.1	Robinson, Tiffany	TR
MCAWW 325.2	Ross, Jon	JR
MCAWW 353.2	Ross, Jon	JR
MCAWW 375.4	Ross, Jon	JR
MCAWW 415.1	Blackshear, Kim	KB
MCAWW 415.1	Holmes, Tinita	TH

3/11/11

SAMPLE SUMMARY

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-63678-1	CPAMW-05D-1210	Water	12/02/2010 1145	12/03/2010 0924
680-63678-1MS	CPAMW-05D-1210	Water	12/02/2010 1145	12/03/2010 0924
680-63678-1MSD	CPAMW-05D-1210	Water	12/02/2010 1145	12/03/2010 0924
680-63678-2	CPAMW05D-F(0.2)-1210	Water	12/02/2010 1145	12/03/2010 0924
680-63678-3	BSA-MW-5D-1210	Water	12/02/2010 1520	12/03/2010 0924
680-63678-4	BSA-MW-5D-F(0.2)-1210	Water	12/02/2010 1520	12/03/2010 0924
680-63678-5TB	4Q10 LTM Trip Blk #1	Water	12/02/2010 1520	12/03/2010 0924
680-63736-1	BSA-MW-04D-1210	Water	12/03/2010 1020	12/04/2010 1023
680-63736-2	BSA-MW-04D-F(0.2)-1210	Water	12/03/2010 1020	12/04/2010 1023
680-63736-3	CPA-MW-04D-1210	Water	12/03/2010 1300	12/04/2010 1023
680-63736-4	CPA-MW-04D-F(0.2)-1210	Water	12/03/2010 1300	12/04/2010 1023
680-63736-5	BSA-MW-03D-1210	Water	12/03/2010 1545	12/04/2010 1023
680-63736-6	BSA-MW-03D-F(0.2)-1210	Water	12/03/2010 1545	12/04/2010 1023
680-63736-7EB	BSA-MW-03D-1210-EB	Water	12/03/2010 1545	12/04/2010 1023
680-63736-8TB	4Q10 LTM Trip Blank #2	Water	12/03/2010 1545	12/04/2010 1023

3/1/11

SAMPLE RESULTS

3/11/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **CPAMW-05D-1210**

Lab Sample ID: 680-63678-1
Client Matrix: Water

Date Sampled: 12/02/2010 1145
Date Received: 12/03/2010 0924

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-188968	Instrument ID: MSO2
Preparation:	5030B		Lab File ID: o0732.d
Dilution:	20		Initial Weight/Volume: 5 mL
Date Analyzed:	12/14/2010 1334		Final Weight/Volume: 5 mL
Date Prepared:	12/14/2010 1334		

Analyte	Result (ug/L)	Qualifier	RL
Benzene	20	U	20
Chlorobenzene	1200		20
1,2-Dichlorobenzene	20	U	20
1,3-Dichlorobenzene	20	U	20
1,4-Dichlorobenzene	20	U	20

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	93		70 - 130
Dibromofluoromethane	100		70 - 130
Toluene-d8 (Surr)	107		70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-5D-1210**

Lab Sample ID: 680-63678-3
Client Matrix: Water

Date Sampled: 12/02/2010 1520
Date Received: 12/03/2010 0924

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-188968	Instrument ID: MSO2
Preparation:	5030B		Lab File ID: o0734.d
Dilution:	5.0		Initial Weight/Volume: 5 mL
Date Analyzed:	12/14/2010 1403		Final Weight/Volume: 5 mL
Date Prepared:	12/14/2010 1403		

Analyte	Result (ug/L)	Qualifier	RL
Benzene	5.0	U	5.0
Chlorobenzene	320		5.0
1,2-Dichlorobenzene	5.0	U	5.0
1,3-Dichlorobenzene	5.0	U	5.0
1,4-Dichlorobenzene	5.0	U	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	94		70 - 130
Dibromofluoromethane	99		70 - 130
Toluene-d8 (Surr)	108		70 - 130

AC 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **4Q10 LTM Trip Blk #1**

Lab Sample ID: 680-63678-5TB
Client Matrix: Water

Date Sampled: 12/02/2010 1520
Date Received: 12/03/2010 0924

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-188968		Instrument ID:	MSO2
Preparation:	5030B			Lab File ID:	o0750.d
Dilution:	1.0			Initial Weight/Volume:	5 mL
Date Analyzed:	12/14/2010 1750			Final Weight/Volume:	5 mL
Date Prepared:	12/14/2010 1750				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	1.0	U	1.0
Chlorobenzene	1.0	U	1.0
1,2-Dichlorobenzene	1.0	U	1.0
1,3-Dichlorobenzene	1.0	U	1.0
1,4-Dichlorobenzene	1.0	U	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	92		70 - 130
Dibromofluoromethane	97		70 - 130
Toluene-d8 (Surr)	99		70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-04D-1210**

Lab Sample ID: 680-63736-1
Client Matrix: Water

Date Sampled: 12/03/2010 1020
Date Received: 12/04/2010 1023

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B
Preparation: 5030B
Dilution: 20
Date Analyzed: 12/15/2010 1729
Date Prepared: 12/15/2010 1729

Analysis Batch: 680-189098

Instrument ID: MSP2
Lab File ID: p0022.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	RL
Benzene	30		20
Chlorobenzene	2300		20
1,2-Dichlorobenzene	20	U	20
1,3-Dichlorobenzene	20	U	20
1,4-Dichlorobenzene	55		20

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	97		70 - 130
Dibromofluoromethane	98		70 - 130
Toluene-d8 (Surr)	106		70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **CPA-MW-04D-1210**

Lab Sample ID: 680-63736-3
Client Matrix: Water

Date Sampled: 12/03/2010 1300
Date Received: 12/04/2010 1023

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189239	Instrument ID: MSP2
Preparation:	5030B		Lab File ID: p0076.d
Dilution:	2.0		Initial Weight/Volume: 5 mL
Date Analyzed:	12/16/2010 1722		Final Weight/Volume: 5 mL
Date Prepared:	12/16/2010 1722		

Analyte	Result (ug/L)	Qualifier	RL
Benzene	48		2.0
Chlorobenzene	220		2.0
1,2-Dichlorobenzene	2.1		2.0
1,3-Dichlorobenzene	2.0	U	2.0
1,4-Dichlorobenzene	2.0	U	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	100		70 - 130
Dibromofluoromethane	104		70 - 130
Toluene-d8 (Surr)	107		70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-03D-1210**

Lab Sample ID: 680-63736-5
Client Matrix: Water

Date Sampled: 12/03/2010 1545
Date Received: 12/04/2010 1023

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189098		Instrument ID:	MSP2
Preparation:	5030B			Lab File ID:	p0028.d
Dilution:	10			Initial Weight/Volume:	5 mL
Date Analyzed:	12/15/2010 1857			Final Weight/Volume:	5 mL
Date Prepared:	12/15/2010 1857				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	75		10
Chlorobenzene	1100		10
1,2-Dichlorobenzene	18		10
1,3-Dichlorobenzene	17		10
1,4-Dichlorobenzene	390		10

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	100		70 - 130
Dibromofluoromethane	100		70 - 130
Toluene-d8 (Surr)	107		70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-03D-1210-EB**

Lab Sample ID: 680-63736-7EB
Client Matrix: Water

Date Sampled: 12/03/2010 1545
Date Received: 12/04/2010 1023

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189098	Instrument ID: MSP2
Preparation:	5030B		Lab File ID: p0014.d
Dilution:	1.0		Initial Weight/Volume: 5 mL
Date Analyzed:	12/15/2010 1533		Final Weight/Volume: 5 mL
Date Prepared:	12/15/2010 1533		

Analyte	Result (ug/L)	Qualifier	RL
Benzene	1.0	U	1.0
Chlorobenzene	1.0	U	1.0
1,2-Dichlorobenzene	1.0	U	1.0
1,3-Dichlorobenzene	1.0	U	1.0
1,4-Dichlorobenzene	1.0	U	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	98		70 - 130
Dibromofluoromethane	103		70 - 130
Toluene-d8 (Surr)	105		70 - 130

AC 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **4Q10 LTM Trip Blank #2**

Lab Sample ID: 680-63736-8TB
Client Matrix: Water

Date Sampled: 12/03/2010 1545
Date Received: 12/04/2010 1023

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189095		Instrument ID:	MSP
Preparation:	5030B			Lab File ID:	p0029.d
Dilution:	1.0			Initial Weight/Volume:	5 mL
Date Analyzed:	12/15/2010 1911			Final Weight/Volume:	5 mL
Date Prepared:	12/15/2010 1911				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	1.0	U	1.0
Chlorobenzene	1.0	U	1.0
1,2-Dichlorobenzene	1.0	U	1.0
1,3-Dichlorobenzene	1.0	U	1.0
1,4-Dichlorobenzene	1.0	U	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	97		70 - 130
Dibromofluoromethane	102		70 - 130
Toluene-d8 (Surr)	103		70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **CPAMW-05D-1210**

Lab Sample ID: 680-63678-1
Client Matrix: Water

Date Sampled: 12/02/2010 1145
Date Received: 12/03/2010 0924

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-188640	Instrument ID: VGUFID2
Preparation:	N/A		Initial Weight/Volume: 17000 uL
Dilution:	1.0		Final Weight/Volume: 17 mL
Date Analyzed:	12/10/2010 1555		Injection Volume: 1 uL
Date Prepared:			Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	2.6		0.35
Ethylene	0.33	U	0.33
Methane	14		0.19

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-5D-1210**

Lab Sample ID: 680-63678-3
Client Matrix: Water

Date Sampled: 12/02/2010 1520
Date Received: 12/03/2010 0924

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-188640	Instrument ID: VGUFID2
Preparation:	N/A		Initial Weight/Volume: 17000 uL
Dilution:	1.0		Final Weight/Volume: 17 mL
Date Analyzed:	12/10/2010 1608		Injection Volume: 1 uL
Date Prepared:			Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	12		0.35
Ethylene	0.33	U	0.33

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-5D-1210**

Lab Sample ID: 680-63678-3
Client Matrix: Water

Date Sampled: 12/02/2010 1520
Date Received: 12/03/2010 0924

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-188641	Instrument ID: VGUTCD1
Preparation:	N/A		Initial Weight/Volume: 17000 uL
Dilution:	1.0		Final Weight/Volume: 17 mL
Date Analyzed:	12/10/2010 1608		Injection Volume: 1 uL
Date Prepared:			Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Methane	7000		0.19

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-04D-1210**

Lab Sample ID: 680-63736-1
Client Matrix: Water

Date Sampled: 12/03/2010 1020
Date Received: 12/04/2010 1023

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-188640	Instrument ID: VGUFID2
Preparation:	N/A		Initial Weight/Volume: 17000 uL
Dilution:	1.0		Final Weight/Volume: 17 mL
Date Analyzed:	12/10/2010 1621		Injection Volume: 1 uL
Date Prepared:			Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	4.0		0.35
Ethylene	0.33	U	0.33
Methane	200		0.19

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **CPA-MW-04D-1210**

Lab Sample ID: 680-63736-3
Client Matrix: Water

Date Sampled: 12/03/2010 1300
Date Received: 12/04/2010 1023

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-188640	Instrument ID: VGUFID2
Preparation:	N/A		Initial Weight/Volume: 17000 uL
Dilution:	1.0		Final Weight/Volume: 17 mL
Date Analyzed:	12/10/2010 1634		Injection Volume: 1 uL
Date Prepared:			Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	11		0.35
Ethylene	0.33	U	0.33

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **CPA-MW-04D-1210**

Lab Sample ID: 680-63736-3
Client Matrix: Water

Date Sampled: 12/03/2010 1300
Date Received: 12/04/2010 1023

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-188641	Instrument ID: VGUTCD1
Preparation:	N/A		Initial Weight/Volume: 17000 uL
Dilution:	1.0		Final Weight/Volume: 17 mL
Date Analyzed:	12/10/2010 1634		Injection Volume: 1 uL
Date Prepared:			Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Methane	9100		0.19

AG 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-03D-1210**

Lab Sample ID: 680-63736-5
Client Matrix: Water

Date Sampled: 12/03/2010 1545
Date Received: 12/04/2010 1023

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-188640	Instrument ID: VGUFID2
Preparation:	N/A		Initial Weight/Volume: 17000 uL
Dilution:	1.0		Final Weight/Volume: 17 mL
Date Analyzed:	12/10/2010 1646		Injection Volume: 1 uL
Date Prepared:			Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	1.2		0.35
Ethylene	3.3		0.33
Methane	240		0.19

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **CPAMW-05D-1210**

Lab Sample ID: 680-63678-1
Client Matrix: Water

Date Sampled: 12/02/2010 1145
Date Received: 12/03/2010 0924

6010B Metals (ICP)-Total Recoverable

Method:	6010B	Analysis Batch: 680-188613		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188170		Lab File ID:	120910104750.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/10/2010 1237			Final Weight/Volume:	50 mL
Date Prepared:	12/07/2010 1200				

Analyte	Result (mg/L)	Qualifier	RL
Iron	74	"J"	0.050
Manganese	2.2	"J"	0.010

AC 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **CPAMW05D-F(0.2)-1210**

Lab Sample ID: 680-63678-2
Client Matrix: Water

Date Sampled: 12/02/2010 1145
Date Received: 12/03/2010 0924

6010B Metals (ICP)-Dissolved

Method:	6010B	Analysis Batch: 680-188613		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188170		Lab File ID:	120910104750.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/10/2010 0242			Final Weight/Volume:	50 mL
Date Prepared:	12/07/2010 1200				

Analyte	Result (mg/L)	Qualifier	RL
Iron, Dissolved	86	"J"	0.050
Manganese, Dissolved	2.9	"J"	0.010

AG 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-5D-1210**

Lab Sample ID: 680-63678-3
Client Matrix: Water

Date Sampled: 12/02/2010 1520
Date Received: 12/03/2010 0924

6010B Metals (ICP)-Total Recoverable

Method:	6010B	Analysis Batch: 680-188613		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188170		Lab File ID:	120910104750.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/10/2010 0247			Final Weight/Volume:	50 mL
Date Prepared:	12/07/2010 1200				

Analyte	Result (mg/L)	Qualifier	RL
Iron	14		0.050
Manganese	0.48		0.010

AE 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-5D-F(0.2)-1210**

Lab Sample ID: 680-63678-4
Client Matrix: Water

Date Sampled: 12/02/2010 1520
Date Received: 12/03/2010 0924

6010B Metals (ICP)-Dissolved

Method:	6010B	Analysis Batch: 680-188613		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188170		Lab File ID:	120910104750.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/10/2010 0252			Final Weight/Volume:	50 mL
Date Prepared:	12/07/2010 1200				

Analyte	Result (mg/L)	Qualifier	RL
Iron, Dissolved	14		0.050
Manganese, Dissolved	0.52		0.010

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-04D-1210**

Lab Sample ID: 680-63736-1
Client Matrix: Water

Date Sampled: 12/03/2010 1020
Date Received: 12/04/2010 1023

6010B Metals (ICP)-Total Recoverable

Method:	6010B	Analysis Batch: 680-188613		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188170		Lab File ID:	120910104750.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/10/2010 0257			Final Weight/Volume:	50 mL
Date Prepared:	12/07/2010 1200				

Analyte	Result (mg/L)	Qualifier	RL
Iron	9.9		0.050
Manganese	0.73		0.010

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-04D-F(0.2)-1210**

Lab Sample ID: 680-63736-2
Client Matrix: Water

Date Sampled: 12/03/2010 1020
Date Received: 12/04/2010 1023

6010B Metals (ICP)-Dissolved

Method:	6010B	Analysis Batch: 680-188613		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188170		Lab File ID:	120910104750.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/10/2010 0302			Final Weight/Volume:	50 mL
Date Prepared:	12/07/2010 1200				

Analyte	Result (mg/L)	Qualifier	RL
Iron, Dissolved	9.6		0.050
Manganese, Dissolved	0.71		0.010

AC 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **CPA-MW-04D-1210**

Lab Sample ID: 680-63736-3
Client Matrix: Water

Date Sampled: 12/03/2010 1300
Date Received: 12/04/2010 1023

6010B Metals (ICP)-Total Recoverable

Method:	6010B	Analysis Batch: 680-188613		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188170		Lab File ID:	120910104750.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/10/2010 0317			Final Weight/Volume:	50 mL
Date Prepared:	12/07/2010 1200				

Analyte	Result (mg/L)	Qualifier	RL
Iron	12		0.050
Manganese	0.28		0.010

AC 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **CPA-MW-04D-F(0.2)-1210**

Lab Sample ID: 680-63736-4
Client Matrix: Water

Date Sampled: 12/03/2010 1300
Date Received: 12/04/2010 1023

6010B Metals (ICP)-Dissolved

Method:	6010B	Analysis Batch: 680-188613		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188170		Lab File ID:	120910104750.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/10/2010 0323			Final Weight/Volume:	50 mL
Date Prepared:	12/07/2010 1200				

Analyte	Result (mg/L)	Qualifier	RL
Iron, Dissolved	11		0.050
Manganese, Dissolved	0.28		0.010

AC 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-03D-1210**

Lab Sample ID: 680-63736-5
Client Matrix: Water

Date Sampled: 12/03/2010 1545
Date Received: 12/04/2010 1023

6010B Metals (ICP)-Total Recoverable

Method:	6010B	Analysis Batch: 680-188613		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188170		Lab File ID:	120910104750.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/10/2010 0328			Final Weight/Volume:	50 mL
Date Prepared:	12/07/2010 1200				

Analyte	Result (mg/L)	Qualifier	RL
Iron	12		0.050
Manganese	0.57		0.010

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Client Sample ID: **BSA-MW-03D-F(0.2)-1210**

Lab Sample ID: 680-63736-6
Client Matrix: Water

Date Sampled: 12/03/2010 1545
Date Received: 12/04/2010 1023

6010B Metals (ICP)-Dissolved

Method:	6010B	Analysis Batch: 680-188613		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188170		Lab File ID:	120910104750.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/10/2010 0333			Final Weight/Volume:	50 mL
Date Prepared:	12/07/2010 1200				

Analyte	Result (mg/L)	Qualifier	RL
Iron, Dissolved	11		0.050
Manganese, Dissolved	0.54		0.010

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

General Chemistry

Client Sample ID: **CPAMW-05D-1210**

Lab Sample ID: 680-63678-1
Client Matrix: Water

Date Sampled: 12/02/2010 1145
Date Received: 12/03/2010 0924

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	300		mg/L	5.0	5.0	325.2
Analysis Batch: 680-189417	Date Analyzed: 12/17/2010 1455					
Nitrate as N	0.050	U	mg/L	0.050	1.0	353.2
Analysis Batch: 680-187945	Date Analyzed: 12/03/2010 1514					
Sulfate	1400		mg/L	500	100	375.4
Analysis Batch: 680-189460	Date Analyzed: 12/18/2010 1039					
Total Organic Carbon	3.8		mg/L	1.0	1.0	415.1
Analysis Batch: 680-190005	Date Analyzed: 12/22/2010 2109					

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity	340		mg/L	5.0	1.0	310.1
Analysis Batch: 680-187933	Date Analyzed: 12/05/2010 0928					
Carbon Dioxide, Free	130		mg/L	5.0	1.0	310.1
Analysis Batch: 680-187933	Date Analyzed: 12/05/2010 0928					

AG 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

General Chemistry

Client Sample ID: **CPAMW05D-F(0.2)-1210**

Lab Sample ID: 680-63678-2
Client Matrix: Water

Date Sampled: 12/02/2010 1145
Date Received: 12/03/2010 0924

Analyte	Result	Qual	Units	RL	Dil	Method
Dissolved Organic Carbon-Dissolved	3.9		mg/L	1.0	1.0	415.1

Analysis Batch: 680-188404 Date Analyzed: 12/08/2010 1000

AO 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

General Chemistry

Client Sample ID: **BSA-MW-5D-1210**

Lab Sample ID: 680-63678-3
Client Matrix: Water

Date Sampled: 12/02/2010 1520
Date Received: 12/03/2010 0924

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	270		mg/L	5.0	5.0	325.2
Analysis Batch: 680-189417	Date Analyzed: 12/17/2010 1455					
Nitrate as N	0.050	U	mg/L	0.050	1.0	353.2
Analysis Batch: 680-187945	Date Analyzed: 12/03/2010 1503					
Sulfate	21		mg/L	5.0	1.0	375.4
Analysis Batch: 680-189460	Date Analyzed: 12/18/2010 1021					
Total Organic Carbon	5.4	"J"	mg/L	1.0	1.0	415.1
Analysis Batch: 680-190005	Date Analyzed: 12/22/2010 2123					

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity	790		mg/L	5.0	1.0	310.1
Analysis Batch: 680-187933	Date Analyzed: 12/05/2010 0941					
Carbon Dioxide, Free	74		mg/L	5.0	1.0	310.1
Analysis Batch: 680-187933	Date Analyzed: 12/05/2010 0941					

Mar 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

General Chemistry

Client Sample ID: **BSA-MW-5D-F(0.2)-1210**

Lab Sample ID: 680-63678-4
Client Matrix: Water

Date Sampled: 12/02/2010 1520
Date Received: 12/03/2010 0924

Analyte	Result	Qual	Units	RL	Dil	Method
Dissolved Organic Carbon-Dissolved	5.9	"J"	mg/L	1.0	1.0	415.1

Analysis Batch: 680-188404 Date Analyzed: 12/08/2010 1000

AG 3/1/11

General Chemistry

Client Sample ID: **BSA-MW-04D-1210**

Lab Sample ID: 680-63736-1
Client Matrix: Water

Date Sampled: 12/03/2010 1020
Date Received: 12/04/2010 1023

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	160		mg/L	2.0	2.0	325.2
Analysis Batch: 680-189417	Date Analyzed: 12/17/2010 1444					
Nitrate as N	0.050	U	mg/L	0.050	1.0	353.2
Analysis Batch: 680-187946	Date Analyzed: 12/04/2010 1637					
Sulfate	29		mg/L	5.0	1.0	375.4
Analysis Batch: 680-189460	Date Analyzed: 12/18/2010 1021					
Total Organic Carbon	4.8	"R"	mg/L	1.0	1.0	415.1
Analysis Batch: 680-190005	Date Analyzed: 12/22/2010 2140					

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity	640		mg/L	5.0	1.0	310.1
Analysis Batch: 680-187933	Date Analyzed: 12/05/2010 0900					
Carbon Dioxide, Free	74		mg/L	5.0	1.0	310.1
Analysis Batch: 680-187933	Date Analyzed: 12/05/2010 0900					

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

General Chemistry

Client Sample ID: **BSA-MW-04D-F(0.2)-1210**

Lab Sample ID: 680-63736-2
Client Matrix: Water

Date Sampled: 12/03/2010 1020
Date Received: 12/04/2010 1023

Analyte	Result	Qual	Units	RL	Dil	Method
Dissolved Organic Carbon-Dissolved	7.5	"R"	mg/L	1.0	1.0	415.1

Analysis Batch: 680-188404 Date Analyzed: 12/08/2010 1000

AG 3/1/11

General Chemistry

Client Sample ID: **CPA-MW-04D-1210**

Lab Sample ID: 680-63736-3
Client Matrix: Water

Date Sampled: 12/03/2010 1300
Date Received: 12/04/2010 1023

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	270		mg/L	5.0	5.0	325.2
Analysis Batch: 680-189417	Date Analyzed: 12/17/2010 1455					
Nitrate as N	0.050	U	mg/L	0.050	1.0	353.2
Analysis Batch: 680-187946	Date Analyzed: 12/04/2010 1639					
Sulfate	5.0	U	mg/L	5.0	1.0	375.4
Analysis Batch: 680-189460	Date Analyzed: 12/18/2010 1021					
Total Organic Carbon	10	"J"	mg/L	1.0	1.0	415.1
Analysis Batch: 680-190005	Date Analyzed: 12/22/2010 2154					

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity	770		mg/L	5.0	1.0	310.1
Analysis Batch: 680-187933	Date Analyzed: 12/05/2010 0911					
Carbon Dioxide, Free	78		mg/L	5.0	1.0	310.1
Analysis Batch: 680-187933	Date Analyzed: 12/05/2010 0911					

AG 3/11/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

General Chemistry

Client Sample ID: **CPA-MW-04D-F(0.2)-1210**

Lab Sample ID: 680-63736-4
Client Matrix: Water

Date Sampled: 12/03/2010 1300
Date Received: 12/04/2010 1023

Analyte	Result	Qual	Units	RL	Dil	Method
Dissolved Organic Carbon-Dissolved	11	"J"	mg/L	1.0	1.0	415.1

Analysis Batch: 680-188404 Date Analyzed: 12/08/2010 1000

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

General Chemistry

Client Sample ID: **BSA-MW-03D-1210**

Lab Sample ID: 680-63736-5
Client Matrix: Water

Date Sampled: 12/03/2010 1545
Date Received: 12/04/2010 1023

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	67		mg/L	1.0	1.0	325.2
Analysis Batch: 680-189417	Date Analyzed: 12/17/2010 1441					
Nitrate as N	0.050	U	mg/L	0.050	1.0	353.2
Analysis Batch: 680-187946	Date Analyzed: 12/04/2010 1643					
Sulfate	230		mg/L	50	10	375.4
Analysis Batch: 680-189460	Date Analyzed: 12/18/2010 1028					
Total Organic Carbon	4.0		mg/L	1.0	1.0	415.1
Analysis Batch: 680-190005	Date Analyzed: 12/22/2010 2210					

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity	470		mg/L	5.0	1.0	310.1
Analysis Batch: 680-187933	Date Analyzed: 12/05/2010 0921					
Carbon Dioxide, Free	48		mg/L	5.0	1.0	310.1
Analysis Batch: 680-187933	Date Analyzed: 12/05/2010 0921					

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

General Chemistry

Client Sample ID: **BSA-MW-03D-F(0.2)-1210**

Lab Sample ID: 680-63736-6
Client Matrix: Water

Date Sampled: 12/03/2010 1545
Date Received: 12/04/2010 1023

Analyte	Result	Qual	Units	RL	Dil	Method
Dissolved Organic Carbon-Dissolved	3.9		mg/L	1.0	1.0	415.1

Analysis Batch: 680-188404 Date Analyzed: 12/08/2010 1000

DATA REPORTING QUALIFIERS

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Indicates the analyte was analyzed for but not detected.
GC VOA		
	U	Indicates the analyte was analyzed for but not detected.
Metals		
	U	Indicates the analyte was analyzed for but not detected.
General Chemistry		
	U	Indicates the analyte was analyzed for but not detected.
	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.

4/1/11

QUALITY CONTROL RESULTS

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:680-188968					
LCS 680-188968/5	Lab Control Sample	T	Water	8260B	
LCSD 680-188968/6	Lab Control Sample Duplicate	T	Water	8260B	
MB 680-188968/8	Method Blank	T	Water	8260B	
680-63678-1	CPAMW-05D-1210	T	Water	8260B	
680-63678-1MS	Matrix Spike	T	Water	8260B	
680-63678-1MSD	Matrix Spike Duplicate	T	Water	8260B	
680-63678-3	BSA-MW-5D-1210	T	Water	8260B	
680-63678-5TB	4Q10 LTM Trip Blk #1	T	Water	8260B	
Analysis Batch:680-189095					
LCS 680-189095/3	Lab Control Sample	T	Water	8260B	
LCSD 680-189095/4	Lab Control Sample Duplicate	T	Water	8260B	
MB 680-189095/6	Method Blank	T	Water	8260B	
680-63736-8TB	4Q10 LTM Trip Blank #2	T	Water	8260B	
Analysis Batch:680-189098					
LCS 680-189098/4	Lab Control Sample	T	Water	8260B	
LCSD 680-189098/5	Lab Control Sample Duplicate	T	Water	8260B	
MB 680-189098/7	Method Blank	T	Water	8260B	
680-63736-1	BSA-MW-04D-1210	T	Water	8260B	
680-63736-5	BSA-MW-03D-1210	T	Water	8260B	
680-63736-7EB	BSA-MW-03D-1210-EB	T	Water	8260B	
Analysis Batch:680-189239					
LCS 680-189239/3	Lab Control Sample	T	Water	8260B	
LCSD 680-189239/4	Lab Control Sample Duplicate	T	Water	8260B	
MB 680-189239/6	Method Blank	T	Water	8260B	
680-63736-3	CPA-MW-04D-1210	T	Water	8260B	

Report Basis
T = Total

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC VOA					
Analysis Batch:680-188640					
LCS 680-188640/21	Lab Control Sample	T	Water	RSK-175	
LCSD 680-188640/23	Lab Control Sample Duplicate	T	Water	RSK-175	
MB 680-188640/22	Method Blank	T	Water	RSK-175	
680-63678-1	CPAMW-05D-1210	T	Water	RSK-175	
680-63678-3	BSA-MW-5D-1210	T	Water	RSK-175	
680-63736-1	BSA-MW-04D-1210	T	Water	RSK-175	
680-63736-3	CPA-MW-04D-1210	T	Water	RSK-175	
680-63736-5	BSA-MW-03D-1210	T	Water	RSK-175	
Analysis Batch:680-188641					
LCS 680-188641/13	Lab Control Sample	T	Water	RSK-175	
LCSD 680-188641/15	Lab Control Sample Duplicate	T	Water	RSK-175	
MB 680-188641/14	Method Blank	T	Water	RSK-175	
680-63678-3	BSA-MW-5D-1210	T	Water	RSK-175	
680-63736-3	CPA-MW-04D-1210	T	Water	RSK-175	

Report Basis
T = Total

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 680-188170					
LCS 680-188170/22-A	Lab Control Sample	R	Water	3005A	
MB 680-188170/21-A	Method Blank	R	Water	3005A	
680-63678-1	CPAMW-05D-1210	R	Water	3005A	
680-63678-2	CPAMW05D-F(0.2)-1210	D	Water	3005A	
680-63678-3	BSA-MW-5D-1210	R	Water	3005A	
680-63678-4	BSA-MW-5D-F(0.2)-1210	D	Water	3005A	
680-63736-1	BSA-MW-04D-1210	R	Water	3005A	
680-63736-2	BSA-MW-04D-F(0.2)-1210	D	Water	3005A	
680-63736-3	CPA-MW-04D-1210	R	Water	3005A	
680-63736-4	CPA-MW-04D-F(0.2)-1210	D	Water	3005A	
680-63736-5	BSA-MW-03D-1210	R	Water	3005A	
680-63736-6	BSA-MW-03D-F(0.2)-1210	D	Water	3005A	
Analysis Batch:680-188613					
LCS 680-188170/22-A	Lab Control Sample	R	Water	6010B	680-188170
MB 680-188170/21-A	Method Blank	R	Water	6010B	680-188170
680-63678-1	CPAMW-05D-1210	R	Water	6010B	680-188170
680-63678-2	CPAMW05D-F(0.2)-1210	D	Water	6010B	680-188170
680-63678-3	BSA-MW-5D-1210	R	Water	6010B	680-188170
680-63678-4	BSA-MW-5D-F(0.2)-1210	D	Water	6010B	680-188170
680-63736-1	BSA-MW-04D-1210	R	Water	6010B	680-188170
680-63736-2	BSA-MW-04D-F(0.2)-1210	D	Water	6010B	680-188170
680-63736-3	CPA-MW-04D-1210	R	Water	6010B	680-188170
680-63736-4	CPA-MW-04D-F(0.2)-1210	D	Water	6010B	680-188170
680-63736-5	BSA-MW-03D-1210	R	Water	6010B	680-188170
680-63736-6	BSA-MW-03D-F(0.2)-1210	D	Water	6010B	680-188170

Report Basis
D = Dissolved
R = Total Recoverable

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:680-187933					
LCS 680-187933/9	Lab Control Sample	T	Water	310.1	
LCSD 680-187933/18	Lab Control Sample Duplicate	T	Water	310.1	
MB 680-187933/8	Method Blank	T	Water	310.1	
680-63678-1	CPAMW-05D-1210	T	Water	310.1	
680-63678-3	BSA-MW-5D-1210	T	Water	310.1	
680-63736-1	BSA-MW-04D-1210	T	Water	310.1	
680-63736-3	CPA-MW-04D-1210	T	Water	310.1	
680-63736-5	BSA-MW-03D-1210	T	Water	310.1	
Analysis Batch:680-187945					
LCS 680-187945/2	Lab Control Sample	T	Water	353.2	
MB 680-187945/1	Method Blank	T	Water	353.2	
680-63678-1	CPAMW-05D-1210	T	Water	353.2	
680-63678-3	BSA-MW-5D-1210	T	Water	353.2	
Analysis Batch:680-187946					
LCS 680-187946/2	Lab Control Sample	T	Water	353.2	
MB 680-187946/1	Method Blank	T	Water	353.2	
680-63736-1	BSA-MW-04D-1210	T	Water	353.2	
680-63736-1DU	Duplicate	T	Water	353.2	
680-63736-3	CPA-MW-04D-1210	T	Water	353.2	
680-63736-5	BSA-MW-03D-1210	T	Water	353.2	
Analysis Batch:680-188404					
680-63678-2	CPAMW05D-F(0.2)-1210	D	Water	415.1	
680-63678-2DU	Duplicate	D	Water	415.1	
680-63678-4	BSA-MW-5D-F(0.2)-1210	D	Water	415.1	
680-63736-2	BSA-MW-04D-F(0.2)-1210	D	Water	415.1	
680-63736-4	CPA-MW-04D-F(0.2)-1210	D	Water	415.1	
680-63736-6	BSA-MW-03D-F(0.2)-1210	D	Water	415.1	
Analysis Batch:680-189417					
LCS 680-189417/1	Lab Control Sample	T	Water	325.2	
MB 680-189417/2	Method Blank	T	Water	325.2	
680-63678-1	CPAMW-05D-1210	T	Water	325.2	
680-63678-1MS	Matrix Spike	T	Water	325.2	
680-63678-1MSD	Matrix Spike Duplicate	T	Water	325.2	
680-63678-3	BSA-MW-5D-1210	T	Water	325.2	
680-63736-1	BSA-MW-04D-1210	T	Water	325.2	
680-63736-3	CPA-MW-04D-1210	T	Water	325.2	
680-63736-5	BSA-MW-03D-1210	T	Water	325.2	

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:680-189460					
LCS 680-189460/2	Lab Control Sample	T	Water	375.4	
MB 680-189460/1	Method Blank	T	Water	375.4	
680-63678-1	CPAMW-05D-1210	T	Water	375.4	
680-63678-1DU	Duplicate	T	Water	375.4	
680-63678-3	BSA-MW-5D-1210	T	Water	375.4	
680-63736-1	BSA-MW-04D-1210	T	Water	375.4	
680-63736-3	CPA-MW-04D-1210	T	Water	375.4	
680-63736-5	BSA-MW-03D-1210	T	Water	375.4	
Analysis Batch:680-190005					
LCS 680-190005/4	Lab Control Sample	T	Water	415.1	
MB 680-190005/2	Method Blank	T	Water	415.1	
680-63678-1	CPAMW-05D-1210	T	Water	415.1	
680-63678-3	BSA-MW-5D-1210	T	Water	415.1	
680-63736-1	BSA-MW-04D-1210	T	Water	415.1	
680-63736-3	CPA-MW-04D-1210	T	Water	415.1	
680-63736-5	BSA-MW-03D-1210	T	Water	415.1	

Report Basis
D = Dissolved
T = Total

AC 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	BFB %Rec	DBFM %Rec	TOL %Rec
680-63678-1	CPAMW-05D-1210	93	100	107
680-63678-3	BSA-MW-5D-1210	94	99	108
680-63678-5	4Q10 LTM Trip Blk #1	92	97	99
680-63736-1	BSA-MW-04D-1210	97	98	106
680-63736-3	CPA-MW-04D-1210	100	104	107
680-63736-5	BSA-MW-03D-1210	100	100	107
680-63736-7	BSA-MW-03D-1210-EB	98	103	105
680-63736-8	4Q10 LTM Trip Blank #2	97	102	103
MB 680-188968/8		93	104	106
MB 680-189095/6		98	101	105
MB 680-189098/7		98	103	105
MB 680-189239/6		98	105	104
LCS 680-188968/5		99	112	108
LCS 680-189095/3		98	106	102
LCS 680-189098/4		100	108	107
LCS 680-189239/3		100	109	103
LCSD 680-188968/6		97	115	106
LCSD 680-189095/4		102	103	103
LCSD 680-189098/5		101	105	104
LCSD 680-189239/4		101	110	103
680-63678-1 MS	CPAMW-05D-1210 MS	102	108	110
680-63678-1 MSD	CPAMW-05D-1210 MSD	96	103	100

Surrogate	Acceptance Limits
BFB = 4-Bromofluorobenzene	70-130
DBFM = Dibromofluoromethane	70-130
TOL = Toluene-d8 (Surr)	70-130

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-188968

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 680-188968/8
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/14/2010 1306
Date Prepared: 12/14/2010 1306

Analysis Batch: 680-188968
Prep Batch: N/A
Units: ug/L

Instrument ID: MSO2
Lab File ID: oq412.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Benzene	1.0	U	1.0
Chlorobenzene	1.0	U	1.0
1,2-Dichlorobenzene	1.0	U	1.0
1,3-Dichlorobenzene	1.0	U	1.0
1,4-Dichlorobenzene	1.0	U	1.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	93	70 - 130
Dibromofluoromethane	104	70 - 130
Toluene-d8 (Surr)	106	70 - 130

AO 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-188968

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 680-188968/5	Analysis Batch:	680-188968	Instrument ID:	MSO2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	oq404.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/14/2010 1107			Final Weight/Volume:	5 mL
Date Prepared:	12/14/2010 1107				

LCSD Lab Sample ID:	LCSD 680-188968/6	Analysis Batch:	680-188968	Instrument ID:	MSO2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	oq406.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/14/2010 1141			Final Weight/Volume:	5 mL
Date Prepared:	12/14/2010 1141				

	% Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	112	109	70 - 130	2	30		
Chlorobenzene	103	104	70 - 130	1	30		
1,2-Dichlorobenzene	105	99	70 - 130	5	30		
1,3-Dichlorobenzene	107	100	70 - 130	6	30		
1,4-Dichlorobenzene	104	98	70 - 130	6	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	99	97	70 - 130
Dibromofluoromethane	112	115	70 - 130
Toluene-d8 (Surr)	108	106	70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 680-188968

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	680-63678-1	Analysis Batch: 680-188968	Instrument ID: MSO2
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: o0758.d
Dilution:	20		Initial Weight/Volume: 5 mL
Date Analyzed:	12/14/2010 1944		Final Weight/Volume: 5 mL
Date Prepared:	12/14/2010 1944		

MSD Lab Sample ID:	680-63678-1	Analysis Batch: 680-188968	Instrument ID: MSO2
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: o0760.d
Dilution:	20		Initial Weight/Volume: 5 mL
Date Analyzed:	12/14/2010 2012		Final Weight/Volume: 5 mL
Date Prepared:	12/14/2010 2012		

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Benzene	107	104	70 - 130	3	30		
Chlorobenzene	93	95	70 - 130	1	30		
1,2-Dichlorobenzene	103	95	70 - 130	8	30		
1,3-Dichlorobenzene	105	96	70 - 130	9	30		
1,4-Dichlorobenzene	103	95	70 - 130	7	30		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	102	96	70 - 130
Dibromofluoromethane	108	103	70 - 130
Toluene-d8 (Surr)	110	100	70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-189095

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 680-189095/6
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/15/2010 1154
Date Prepared: 12/15/2010 1154

Analysis Batch: 680-189095
Prep Batch: N/A
Units: ug/L

Instrument ID: MSP
Lab File ID: pq029.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Benzene	1.0	U	1.0
Chlorobenzene	1.0	U	1.0
1,2-Dichlorobenzene	1.0	U	1.0
1,3-Dichlorobenzene	1.0	U	1.0
1,4-Dichlorobenzene	1.0	U	1.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	98	70 - 130
Dibromofluoromethane	101	70 - 130
Toluene-d8 (Surr)	105	70 - 130

AO 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-189095

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 680-189095/3	Analysis Batch:	680-189095	Instrument ID:	MSP
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	pq021.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/15/2010 0958			Final Weight/Volume:	5 mL
Date Prepared:	12/15/2010 0958				

LCSD Lab Sample ID:	LCSD 680-189095/4	Analysis Batch:	680-189095	Instrument ID:	MSP
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	pq023.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/15/2010 1027			Final Weight/Volume:	5 mL
Date Prepared:	12/15/2010 1027				

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	99	101	70 - 130	2	30		
Chlorobenzene	104	104	70 - 130	0	30		
1,2-Dichlorobenzene	107	110	70 - 130	3	30		
1,3-Dichlorobenzene	107	111	70 - 130	3	30		
1,4-Dichlorobenzene	108	111	70 - 130	2	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	98	102	70 - 130
Dibromofluoromethane	106	103	70 - 130
Toluene-d8 (Surr)	102	103	70 - 130

3/11/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-189098

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 680-189098/7
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/15/2010 1209
Date Prepared: 12/15/2010 1209

Analysis Batch: 680-189098
Prep Batch: N/A
Units: ug/L

Instrument ID: MSP2
Lab File ID: pq030.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Benzene	1.0	U	1.0
Chlorobenzene	1.0	U	1.0
1,2-Dichlorobenzene	1.0	U	1.0
1,3-Dichlorobenzene	1.0	U	1.0
1,4-Dichlorobenzene	1.0	U	1.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	98	70 - 130
Dibromofluoromethane	103	70 - 130
Toluene-d8 (Surr)	105	70 - 130

3/11/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-189098

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 680-189098/4	Analysis Batch:	680-189098	Instrument ID:	MSP2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	pq022.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/15/2010 1012			Final Weight/Volume:	5 mL
Date Prepared:	12/15/2010 1012				

LCSD Lab Sample ID:	LCSD 680-189098/5	Analysis Batch:	680-189098	Instrument ID:	MSP2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	pq024.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/15/2010 1041			Final Weight/Volume:	5 mL
Date Prepared:	12/15/2010 1041				

	% Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	105	101	70 - 130	3	30		
Chlorobenzene	104	104	70 - 130	0	30		
1,2-Dichlorobenzene	108	106	70 - 130	2	30		
1,3-Dichlorobenzene	109	109	70 - 130	0	30		
1,4-Dichlorobenzene	109	109	70 - 130	0	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	100	101	70 - 130
Dibromofluoromethane	108	105	70 - 130
Toluene-d8 (Surr)	107	104	70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-189239

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 680-189239/6
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/16/2010 1201
Date Prepared: 12/16/2010 1201

Analysis Batch: 680-189239
Prep Batch: N/A
Units: ug/L

Instrument ID: MSP2
Lab File ID: pq048.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Benzene	1.0	U	1.0
Chlorobenzene	1.0	U	1.0
1,2-Dichlorobenzene	1.0	U	1.0
1,3-Dichlorobenzene	1.0	U	1.0
1,4-Dichlorobenzene	1.0	U	1.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	98	70 - 130
Dibromofluoromethane	105	70 - 130
Toluene-d8 (Surr)	104	70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-189239

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 680-189239/3	Analysis Batch:	680-189239	Instrument ID:	MSP2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	pq040.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/16/2010 1004			Final Weight/Volume:	5 mL
Date Prepared:	12/16/2010 1004				

LCSD Lab Sample ID:	LCSD 680-189239/4	Analysis Batch:	680-189239	Instrument ID:	MSP2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	pq042.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/16/2010 1033			Final Weight/Volume:	5 mL
Date Prepared:	12/16/2010 1033				

	% Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	100	100	70 - 130	0	30		
Chlorobenzene	104	104	70 - 130	0	30		
1,2-Dichlorobenzene	110	110	70 - 130	0	30		
1,3-Dichlorobenzene	108	110	70 - 130	2	30		
1,4-Dichlorobenzene	111	111	70 - 130	0	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	100	101	70 - 130
Dibromofluoromethane	109	110	70 - 130
Toluene-d8 (Surr)	103	103	70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-188640

Method: RSK-175
Preparation: N/A

Lab Sample ID: MB 680-188640/22
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/10/2010 0917
Date Prepared: N/A

Analysis Batch: 680-188640
Prep Batch: N/A
Units: ug/L

Instrument ID: VGUFID2
Lab File ID: UQ313.D
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	Result	Qual	RL
Ethane	0.35	U	0.35
Ethylene	0.33	U	0.33
Methane	0.19	U	0.19

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-188640

Method: RSK-175
Preparation: N/A

LCS Lab Sample ID: LCS 680-188640/21
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/10/2010 0851
Date Prepared: N/A

Analysis Batch: 680-188640
Prep Batch: N/A
Units: ug/L

Instrument ID: VGUFID2
Lab File ID: UQ311.D
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 680-188640/23
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/10/2010 1850
Date Prepared: N/A

Analysis Batch: 680-188640
Prep Batch: N/A
Units: ug/L

Instrument ID: VGUFID2
Lab File ID: UQ315.D
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Ethane	109	104	75 - 125	5	30		
Ethylene	108	99	75 - 125	9	30		
Methane	107	104	75 - 125	2	30		

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-188641

Method: RSK-175
Preparation: N/A

Lab Sample ID: MB 680-188641/14
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/10/2010 0917
Date Prepared: N/A

Analysis Batch: 680-188641
Prep Batch: N/A
Units: ug/L

Instrument ID: VGUTCD1
Lab File ID: UQ313.D
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	Result	Qual	RL
Methane	0.19	U	0.19

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-188641

Method: RSK-175
Preparation: N/A

LCS Lab Sample ID: LCS 680-188641/13
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/10/2010 0826
Date Prepared: N/A

Analysis Batch: 680-188641
Prep Batch: N/A
Units: ug/L

Instrument ID: VGUTCD1
Lab File ID: UQ309.D
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 680-188641/15
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/10/2010 1837
Date Prepared: N/A

Analysis Batch: 680-188641
Prep Batch: N/A
Units: ug/L

Instrument ID: VGUTCD1
Lab File ID: UQ314.D
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methane	97	96	75 - 125	1	30		

AC 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-188170

Method: 6010B
Preparation: 3005A
Total Recoverable

Lab Sample ID: MB 680-188170/21-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/10/2010 0217
Date Prepared: 12/07/2010 1200

Analysis Batch: 680-188613
Prep Batch: 680-188170
Units: mg/L

Instrument ID: ICPD
Lab File ID: 120910104750.chr
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Iron	0.050	U	0.050
Iron, Dissolved	0.050	U	0.050
Manganese	0.010	U	0.010
Manganese, Dissolved	0.010	U	0.010

Lab Control Sample - Batch: 680-188170

Method: 6010B
Preparation: 3005A
Total Recoverable

Lab Sample ID: LCS 680-188170/22-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/10/2010 0222
Date Prepared: 12/07/2010 1200

Analysis Batch: 680-188613
Prep Batch: 680-188170
Units: mg/L

Instrument ID: ICPD
Lab File ID: 120910104750.chr
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Iron	1.00	0.996	100	75 - 125	
Iron, Dissolved	1.00	0.996	100	75 - 125	
Manganese	0.500	0.510	102	75 - 125	
Manganese, Dissolved	0.500	0.510	102	75 - 125	

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-187933

Method: 310.1
Preparation: N/A

Lab Sample ID: MB 680-187933/8
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/05/2010 0841
Date Prepared: N/A

Analysis Batch: 680-187933
Prep Batch: N/A
Units: mg/L

Instrument ID: MANTECH
Lab File ID: alk120510.TXT
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

Analyte	Result	Qual	RL
Alkalinity	5.0	U	5.0
Carbon Dioxide, Free	5.0	U	5.0

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-187933

Method: 310.1
Preparation: N/A

LCS Lab Sample ID: LCS 680-187933/9
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/05/2010 0849
Date Prepared: N/A

Analysis Batch: 680-187933
Prep Batch: N/A
Units: mg/L

Instrument ID: MANTECH
Lab File ID: alk120510.TXT
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

LCSD Lab Sample ID: LCSD 680-187933/18
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/05/2010 1020
Date Prepared: N/A

Analysis Batch: 680-187933
Prep Batch: N/A
Units: mg/L

Instrument ID: MANTECH
Lab File ID: alk120510.TXT
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Alkalinity	91	92	80 - 120	1	30		

AO 3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-189417

Method: 325.2
Preparation: N/A

Lab Sample ID: MB 680-189417/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/17/2010 1413
Date Prepared: N/A

Analysis Batch: 680-189417
Prep Batch: N/A
Units: mg/L

Instrument ID: KONELAB1
Lab File ID: KONE1121710B1CLA.xls
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Result	Qual	RL
Chloride	1.0	U	1.0

Lab Control Sample - Batch: 680-189417

Method: 325.2
Preparation: N/A

Lab Sample ID: LCS 680-189417/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/17/2010 1406
Date Prepared: N/A

Analysis Batch: 680-189417
Prep Batch: N/A
Units: mg/L

Instrument ID: KONELAB1
Lab File ID: KONE1121710B1CLA.xls
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride	50.0	51.3	103	85 - 115	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 680-189417

Method: 325.2
Preparation: N/A

MS Lab Sample ID: 680-63678-1
Client Matrix: Water
Dilution: 5.0
Date Analyzed: 12/17/2010 1423
Date Prepared: N/A

Analysis Batch: 680-189417
Prep Batch: N/A

Instrument ID: KONELAB1
Lab File ID: KONE1121710B1CLA.xls
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

MSD Lab Sample ID: 680-63678-1
Client Matrix: Water
Dilution: 5.0
Date Analyzed: 12/17/2010 1423
Date Prepared: N/A

Analysis Batch: 680-189417
Prep Batch: N/A

Instrument ID: KONELAB1
Lab File ID: KONE1121710B1CLA.xls
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chloride	68	55	85 - 115	2	30	4	4

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-187945

Method: 353.2
Preparation: N/A

Lab Sample ID: MB 680-187945/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/03/2010 1430
Date Prepared: N/A

Analysis Batch: 680-187945
Prep Batch: N/A
Units: mg/L

Instrument ID: Latchat 2
Lab File ID: OM_12-3-2010_14-03-38.OMI
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Result	Qual	RL
Nitrate as N	0.050	U	0.050
Nitrate Nitrite as N	0.050	U	0.050
Nitrite as N	0.050	U	0.050

Lab Control Sample - Batch: 680-187945

Method: 353.2
Preparation: N/A

Lab Sample ID: LCS 680-187945/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/03/2010 1431
Date Prepared: N/A

Analysis Batch: 680-187945
Prep Batch: N/A
Units: mg/L

Instrument ID: Latchat 2
Lab File ID: OM_12-3-2010_14-03-38.OMI
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N	1.00	0.986	99	90 - 110	
Nitrite as N	0.500	0.498	100	90 - 110	

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-187946

Method: 353.2
Preparation: N/A

Lab Sample ID: MB 680-187946/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/04/2010 1614
Date Prepared: N/A

Analysis Batch: 680-187946
Prep Batch: N/A
Units: mg/L

Instrument ID: Latchat 2
Lab File ID: OM_12-4-2010_15-47-00.OMI
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Result	Qual	RL
Nitrate as N	0.050	U	0.050
Nitrate Nitrite as N	0.050	U	0.050
Nitrite as N	0.050	U	0.050

Lab Control Sample - Batch: 680-187946

Method: 353.2
Preparation: N/A

Lab Sample ID: LCS 680-187946/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/04/2010 1615
Date Prepared: N/A

Analysis Batch: 680-187946
Prep Batch: N/A
Units: mg/L

Instrument ID: Latchat 2
Lab File ID: OM_12-4-2010_15-47-00.OMI
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N	1.00	0.993	99	90 - 110	
Nitrite as N	0.500	0.492	98	90 - 110	

Duplicate - Batch: 680-187946

Method: 353.2
Preparation: N/A

Lab Sample ID: 680-63736-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/04/2010 1638
Date Prepared: N/A

Analysis Batch: 680-187946
Prep Batch: N/A
Units: mg/L

Instrument ID: Latchat 2
Lab File ID: OM_12-4-2010_15-47-00.OMI
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Nitrate as N	0.050	U	0.050	NC		U

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-189460

Method: 375.4
Preparation: N/A

Lab Sample ID: MB 680-189460/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/18/2010 0955
Date Prepared: N/A

Analysis Batch: 680-189460
Prep Batch: N/A
Units: mg/L

Instrument ID: KONELAB1
Lab File ID: KONE11218101SO4A.xls
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Result	Qual	RL
Sulfate	5.0	U	5.0

Lab Control Sample - Batch: 680-189460

Method: 375.4
Preparation: N/A

Lab Sample ID: LCS 680-189460/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/18/2010 0955
Date Prepared: N/A

Analysis Batch: 680-189460
Prep Batch: N/A
Units: mg/L

Instrument ID: KONELAB1
Lab File ID: KONE11218101SO4A.xls
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Sulfate	20.0	21.0	105	75 - 125	

Duplicate - Batch: 680-189460

Method: 375.4
Preparation: N/A

Lab Sample ID: 680-63678-1
Client Matrix: Water
Dilution: 100
Date Analyzed: 12/18/2010 1039
Date Prepared: N/A

Analysis Batch: 680-189460
Prep Batch: N/A
Units: mg/L

Instrument ID: KONELAB1
Lab File ID: KONE11218101SO4A.xls
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Sulfate	1400	1350	0.7	30	

3/1/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Duplicate - Batch: 680-188404

Method: 415.1
Preparation: N/A

Lab Sample ID: 680-63678-2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/08/2010 1000
Date Prepared: N/A

Analysis Batch: 680-188404
Prep Batch: N/A
Units: mg/L

Instrument ID: TOC3
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 25 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Dissolved Organic Carbon-Dissolved	3.9	3.86	2	30	

AG 3/11/11

Client: Solutia Inc.

Job Number: 680-63678-1
Sdg Number: KPS061

Method Blank - Batch: 680-190005

Method: 415.1
Preparation: N/A

Lab Sample ID: MB 680-190005/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/22/2010 1717
Date Prepared: N/A

Analysis Batch: 680-190005
Prep Batch: N/A
Units: mg/L

Instrument ID: TOC3
Lab File ID: TOC122210.txt
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

Analyte	Result	Qual	RL
Total Organic Carbon	1.0	U	1.0

Lab Control Sample - Batch: 680-190005

Method: 415.1
Preparation: N/A

Lab Sample ID: LCS 680-190005/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/22/2010 1747
Date Prepared: N/A

Analysis Batch: 680-190005
Prep Batch: N/A
Units: mg/L

Instrument ID: TOC3
Lab File ID: TOC122210.txt
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Total Organic Carbon	20.0	19.7	98	80 - 120	

AO 3/1/11

Serial Number 035192

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
WGK LTM 4Q10		IL
TAL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
LIDYA GULIZIA		
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
GM RINALDI		314 674 8808
CLIENT NAME	CLIENT E-MAIL	
SOLUTIA, INC	gmrinaldi@solutia.com	
CLIENT ADDRESS		
575 MARYVILLE CENTER DR. ST. LOUIS MO 63141		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ⊗
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	MATRIX TYPE: AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
12-2-10	1145	CPA MW-05D-1210	G	X				3 1 1 1 3 2 1	Filtered Sample
12-2-10	1145	CPA MW-05D-F(0.2)-1210	G	X				1 1	
12-2-10	1145	CPA MW-05D-1210-MS	G	X				3	
12-2-10	1145	CPA MW-05D-1210-MSD	G	X				3	
12-2-10	1520	BSA-MW-5D-1210	G	X				3 1 1 1 3 2 1	Filtered Sample
12-2-10	1520	BSA-MW-5D-F(0.2)-1210	G	X				1 1	
12-2-10	1520	4Q10 LTM Trip Blk #1	G	X				2	

REQUIRED ANALYSIS

VOCs by 8260	Total Fe/Mn by 6010B	Alk/CO2 by 310.1	Chloride by 325.2 Sulfate by 375.4	Methane, Ethane by RSK175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010B	DOC by 415.1
HCl	HNO3	None	None	None	H2SO4	HCl	HNO3	HCl

PRESERVATIVE

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	12-2-10	1900						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Beth A Daughtry	12/3/10	0924	YES ○ NO ○		630 602670	Temp 2.1

TAL-8240-680 (1008)

Serial Number 033944

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
WGK-LTM-4Q10		IL
TAL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
GM Rinaldi		
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
GM RINALDI	314-674-3312	314-674-[illegible]
CLIENT NAME	CLIENT E-MAIL	
SOLUTIA INC		
CLIENT ADDRESS		
575 MARYVILLE CTR DR, ST LOUIS MO 63141		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ⊗
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	MATRIX: AQUEOUS (WATER)	MATRIX: SOLID OR SEMISOLID	MATRIX: AIR	MATRIX: NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED: VOC 8260 HCl	TOTAL Fe/Mn 6010B HNO3	Alk/CO2 310.1 PRESERVATIVE	Chloride 325.2	Sulfate 375.4	Methane RSK 175 Ethane Ethene	Nitrate 353.2 H2SO4	TDC 415.1 HCl	Diss Fe/Mn 6010B HNO3	DOC 415.1 HCl	REMARKS
12-3-10	1020	BSA-MW-04D-1210	G	A				3	1	1	1	3	2	1			
	1020	BSA-MW-04D-F(0.2)-1210	G	A											1	1		Filtered
	1300	CPA-MW-04D-1210	G	A				3	1	1	1	3	2	1			
	1300	CPA-MW-04D-F(0.2)-1210	G	A											1	1		Filtered
	1545	BSA-MW-03D-1210	G	A				3	1	1	1	3	2	1			
	1545	BSA-MW-03D-F(0.2)-1210	G	A											1	1		
	1545	BSA-MW-03D-1210-EB	G	A				3										
12-3-10	1545	4Q10 LTM Trip blank #2	G	A				2										

Page 70 of 72

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	12-3-10	1900						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Beth A Daughtry	12/4/10	1023	YES ○ NO ○		680-63736	Temp 1.8

AG 3/1/11

Login Sample Receipt Check List

Client: Solutia Inc.

Job Number: 680-63678-1
SDG Number: KPS061

Login Number: 63678
Creator: Daughtry, Beth
List Number: 1

List Source: TestAmerica Savannah

Question	T / F/ NA	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	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the 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.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	pH adjustment req for TOC/DOC on lab ID -1, -3, -4; diss metals on lab ID -4.
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	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

3/1/11

Login Sample Receipt Check List

Client: Solutia Inc.

Job Number: 680-63678-1
SDG Number: KPS061

Login Number: 63736
Creator: Daughtry, Beth
List Number: 1

List Source: TestAmerica Savannah

Question	T / F/ NA	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	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8 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?	True	
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.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	pH adjusted for DOC on lab ID -4.
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	See narrative as applicable.
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

3/1/11

SDG KPS062

Results of Samples from Monitoring Wells:

BSA-MW-1S
BSA-MW-2D
CPA-MW-1D
CPA-MW-2D
CPA-MW-3D

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 680-63778-1

SDG Number: KPS062

Job Description: WGK LTM - GW 4Q10 - DEC 2010

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

Attention: Mr. Jerry Rinaldi

Approved for release.
Lidya Gulizia
Project Manager I
1/11/2011 5:49 PM

Lidya Gulizia
Project Manager I
lidya.gulizia@testamericainc.com
01/11/2011

cc: Mr. Duane Kreuger

The test results in this report meet NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted. Results pertain only to samples listed in this report. This report may not be reproduced, except in full, without the written approval of the laboratory. Questions should be directed to the person who signed this report.

Savannah Certifications and ID #s: A2LA: 0399.01; AL: 41450; ARDEQ: 88-0692; ARDOH; CA: 03217CA; CO; CT: PH0161; DE; FL: E87052; GA: 803; Guam; HI; IL: 200022; IN; IA: 353; KS: E-10322; KY EPPC: 90084; KY UST; LA DEQ: 30690; LA DHH: LA080008; ME: 2008022; MD: 250; MA: M-GA006; MI: 9925; MS; NFESC: 249; NV: GA00006; NJ: GA769; NM; NY: 10842; NC DWQ: 269; NC DHHS: 13701; PA: 68-00474; PR: GA00006; RI: LAO00244; SC: 98001001; TN: TN0296; TX: T104704185; USEPA: GA00006; VT: VT-87052; VA: 00302; WA; WV DEP: 094; WV DHHR: 9950 C; WI DNR: 999819810; WY/EPAR8: 8TMS-Q

TestAmerica Laboratories, Inc.
TestAmerica Savannah 5102 LaRoche Avenue, Savannah, GA 31404
Tel (912) 354-7858 Fax (912) 352-0165 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

AD 3/1/11

Job Narrative
680-63778-1 / SDG KPS062

Receipt
All samples received on 12/7/10 for Total and Dissolved Organic Carbon (TOC) analysis were received at pH greater than two (> pH2). Additional acid was added upon receipt prior to analysis.

Samples for MW-01D received on 12/8/10 for Total and Dissolved Organic Carbon (TOC) analysis were received at pH greater than two (> pH2). Additional acid was added upon receipt prior to analysis.

The dissolved metals sample received for MW-01D on 12/8/10 was received at pH greater than two (> pH2). Additional acid was added upon receipt prior to analysis.

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

GC/MS 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) 375.4: The following sample(s) was diluted due to the nature of the sample matrix: CPA-MW-03D-1210 (680-63778-1). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

Comments
No additional comments.

3/1/11

METHOD SUMMARY

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Description	Lab Location	Method	Preparation Method
Matrix Water			
Volatile Organic Compounds (GC/MS)	TAL SAV	SW846 8260B	
Purge and Trap	TAL SAV		SW846 5030B
Dissolved Gases (GC)	TAL SAV	RSK RSK-175	
Metals (ICP)	TAL SAV	SW846 6010B	
Preparation, Total Recoverable or Dissolved Metals	TAL SAV		SW846 3005A
Metals (ICP)	TAL SAV	SW846 6010B	
Preparation, Total Recoverable or Dissolved Metals	TAL SAV		SW846 3005A
Sample Filtration, Field			FIELD_FLTRD
Alkalinity	TAL SAV	MCAWW 310.1	
Chloride	TAL SAV	MCAWW 325.2	
Nitrogen, Nitrate-Nitrite	TAL SAV	MCAWW 353.2	
Sulfate	TAL SAV	MCAWW 375.4	
DOC	TAL SAV	MCAWW 415.1	
Sample Filtration, Field			FIELD_FLTRD
TOC	TAL SAV	MCAWW 415.1	

Lab References:

TAL SAV = TestAmerica Savannah

Method 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.

3/11/11

METHOD / ANALYST SUMMARY

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method	Analyst	Analyst ID
SW846 8260B	Bearden, Robert	RB
SW846 8260B	Cowart, Judson	WJC
RSK RSK-175	Moncrief, Amy J	AJM
SW846 6010B	Bland, Brian	BCB
MCAWW 310.1	Crowder, Ca'Lisha	CC
MCAWW 310.1	Robinson, Tiffany	TR
MCAWW 325.2	Ross, Jon	JR
MCAWW 353.2	Ross, Jon	JR
MCAWW 375.4	Ross, Jon	JR
MCAWW 415.1	Blackshear, Kim	KB
MCAWW 415.1	Holmes, Tinita	TH
MCAWW 415.1	McDonald, Debbie	DAM

3/1/11

SAMPLE SUMMARY

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-63778-1	CPA-MW-03D-1210	Water	12/06/2010 1045	12/07/2010 0935
680-63778-2	CPA-MW-03D-F(0.2)-1210	Water	12/06/2010 1045	12/07/2010 0935
680-63778-3	BSA-MW-02D-1210	Water	12/06/2010 1310	12/07/2010 0935
680-63778-4	BSA-MW-02D-F(0.2)-1210	Water	12/06/2010 1310	12/07/2010 0935
680-63778-5	BSA-MW-01S-1210	Water	12/06/2010 1515	12/07/2010 0935
680-63778-6	BSA-MW-01S-F(0.2)-1210	Water	12/06/2010 1515	12/07/2010 0935
680-63778-7TB	Trip Blank #3 LTM 4Q10	Water	12/06/2010 0000	12/07/2010 0935
680-63827-1	CPA-MW-02D-1210	Water	12/07/2010 1200	12/08/2010 0945
680-63827-2	CPA-MW-02D-F(0.2)-1210	Water	12/07/2010 1200	12/08/2010 0945
680-63827-3FD	CPA-MW-02D-1210-AD	Water	12/07/2010 1200	12/08/2010 0945
680-63827-4	CPA-MW-01D-1210	Water	12/07/2010 1530	12/08/2010 0945
680-63827-5	CPA-MW-01D-F(0.2)-1210	Water	12/07/2010 1530	12/08/2010 0945
680-63827-6TB	4Q10 LTM TRIP BLANK #3	Water	12/07/2010 0000	12/08/2010 0945

3/1/11

SAMPLE RESULTS

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-03D-1210**

Lab Sample ID: 680-63778-1
Client Matrix: Water

Date Sampled: 12/06/2010 1045
Date Received: 12/07/2010 0935

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189432	Instrument ID: MSO
Preparation:	5030B		Lab File ID: o0883.d
Dilution:	5.0		Initial Weight/Volume: 5 mL
Date Analyzed:	12/17/2010 2353		Final Weight/Volume: 5 mL
Date Prepared:	12/17/2010 2353		

Analyte	Result (ug/L)	Qualifier	RL
Benzene	68		5.0
Chlorobenzene	310		5.0
1,2-Dichlorobenzene	5.0	U	5.0
1,3-Dichlorobenzene	5.0	U	5.0
1,4-Dichlorobenzene	5.0	U	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	93		70 - 130
Dibromofluoromethane	92		70 - 130
Toluene-d8 (Surr)	107		70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **BSA-MW-02D-1210**

Lab Sample ID: 680-63778-3
Client Matrix: Water

Date Sampled: 12/06/2010 1310
Date Received: 12/07/2010 0935

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189432	Instrument ID: MSO
Preparation:	5030B		Lab File ID: o0884.d
Dilution:	1000		Initial Weight/Volume: 5 mL
Date Analyzed:	12/18/2010 0014		Final Weight/Volume: 5 mL
Date Prepared:	12/18/2010 0014		

Analyte	Result (ug/L)	Qualifier	RL
Benzene	350000	E	1000
Chlorobenzene	2000		1000
1,2-Dichlorobenzene	1000	U	1000
1,3-Dichlorobenzene	1000	U	1000
1,4-Dichlorobenzene	1000	U	1000

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	92		70 - 130
Dibromofluoromethane	91		70 - 130
Toluene-d8 (Surr)	106		70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **BSA-MW-02D-1210**

Lab Sample ID: 680-63778-3
Client Matrix: Water

Date Sampled: 12/06/2010 1310
Date Received: 12/07/2010 0935

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189651		Instrument ID:	MSP2
Preparation:	5030B			Lab File ID:	p0222.d
Dilution:	5000			Initial Weight/Volume:	5 mL
Date Analyzed:	12/20/2010 1939	Run Type: DL		Final Weight/Volume:	5 mL
Date Prepared:	12/20/2010 1939				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	290000	D	5000
Chlorobenzene	5000	U	5000
1,2-Dichlorobenzene	5000	U	5000
1,3-Dichlorobenzene	5000	U	5000
1,4-Dichlorobenzene	5000	U	5000

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	98		70 - 130
Dibromofluoromethane	105		70 - 130
Toluene-d8 (Surr)	110		70 - 130

AC 3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **BSA-MW-01S-1210**

Lab Sample ID: 680-63778-5
Client Matrix: Water

Date Sampled: 12/06/2010 1515
Date Received: 12/07/2010 0935

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189432	Instrument ID: MSO
Preparation:	5030B		Lab File ID: o0885.d
Dilution:	5000		Initial Weight/Volume: 5 mL
Date Analyzed:	12/18/2010 0035		Final Weight/Volume: 5 mL
Date Prepared:	12/18/2010 0035		

Analyte	Result (ug/L)	Qualifier	RL
Benzene	640000		5000
Chlorobenzene	5000	U	5000
1,2-Dichlorobenzene	5000	U	5000
1,3-Dichlorobenzene	5000	U	5000
1,4-Dichlorobenzene	5000	U	5000

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	94		70 - 130
Dibromofluoromethane	91		70 - 130
Toluene-d8 (Surr)	105		70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **Trip Blank #3 LTM 4Q10**

Lab Sample ID: 680-63778-7TB
Client Matrix: Water

Date Sampled: 12/06/2010 0000
Date Received: 12/07/2010 0935

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189432		Instrument ID:	MSO
Preparation:	5030B			Lab File ID:	o0886.d
Dilution:	1.0			Initial Weight/Volume:	5 mL
Date Analyzed:	12/18/2010 0056			Final Weight/Volume:	5 mL
Date Prepared:	12/18/2010 0056				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	1.0	U	1.0
Chlorobenzene	1.0	U	1.0
1,2-Dichlorobenzene	1.0	U	1.0
1,3-Dichlorobenzene	1.0	U	1.0
1,4-Dichlorobenzene	1.0	U	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	90		70 - 130
Dibromofluoromethane	95		70 - 130
Toluene-d8 (Surr)	109		70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-02D-1210**

Lab Sample ID: 680-63827-1
Client Matrix: Water

Date Sampled: 12/07/2010 1200
Date Received: 12/08/2010 0945

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189475		Instrument ID:	MSO
Preparation:	5030B			Lab File ID:	o0921.d
Dilution:	200			Initial Weight/Volume:	5 mL
Date Analyzed:	12/18/2010 1326			Final Weight/Volume:	5 mL
Date Prepared:	12/18/2010 1326				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	470		200
Chlorobenzene	28000		200
1,2-Dichlorobenzene	200		200
1,3-Dichlorobenzene	200	U	200
1,4-Dichlorobenzene	6000		200

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	93		70 - 130
Dibromofluoromethane	92		70 - 130
Toluene-d8 (Surr)	109		70 - 130

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-02D-1210-AD**

Lab Sample ID: 680-63827-3FD
Client Matrix: Water

Date Sampled: 12/07/2010 1200
Date Received: 12/08/2010 0945

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189475		Instrument ID:	MSO
Preparation:	5030B			Lab File ID:	o0923.d
Dilution:	200			Initial Weight/Volume:	5 mL
Date Analyzed:	12/18/2010 1355			Final Weight/Volume:	5 mL
Date Prepared:	12/18/2010 1355				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	470		200
Chlorobenzene	28000		200
1,2-Dichlorobenzene	230		200
1,3-Dichlorobenzene	200	U	200
1,4-Dichlorobenzene	6100		200

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	94		70 - 130
Dibromofluoromethane	96		70 - 130
Toluene-d8 (Surr)	110		70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-01D-1210**

Lab Sample ID: 680-63827-4
Client Matrix: Water

Date Sampled: 12/07/2010 1530
Date Received: 12/08/2010 0945

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189475	Instrument ID: MSO
Preparation:	5030B		Lab File ID: o0925.d
Dilution:	200		Initial Weight/Volume: 5 mL
Date Analyzed:	12/18/2010 1423		Final Weight/Volume: 5 mL
Date Prepared:	12/18/2010 1423		

Analyte	Result (ug/L)	Qualifier	RL
Benzene	8000		200
Chlorobenzene	19000		200
1,2-Dichlorobenzene	19000		200
1,3-Dichlorobenzene	1200		200
1,4-Dichlorobenzene	11000		200

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	92		70 - 130
Dibromofluoromethane	92		70 - 130
Toluene-d8 (Surr)	108		70 - 130

3/11/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **4Q10 LTM TRIP BLANK #3**

Lab Sample ID: 680-63827-6TB
Client Matrix: Water

Date Sampled: 12/07/2010 0000
Date Received: 12/08/2010 0945

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 680-189475	Instrument ID: MSO
Preparation:	5030B		Lab File ID: o0909.d
Dilution:	1.0		Initial Weight/Volume: 5 mL
Date Analyzed:	12/18/2010 1034		Final Weight/Volume: 5 mL
Date Prepared:	12/18/2010 1034		

Analyte	Result (ug/L)	Qualifier	RL
Benzene	1.0	U	1.0
Chlorobenzene	1.0	U	1.0
1,2-Dichlorobenzene	1.0	U	1.0
1,3-Dichlorobenzene	1.0	U	1.0
1,4-Dichlorobenzene	1.0	U	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	93		70 - 130
Dibromofluoromethane	97		70 - 130
Toluene-d8 (Surr)	109		70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-03D-1210**

Lab Sample ID: 680-63778-1
Client Matrix: Water

Date Sampled: 12/06/2010 1045
Date Received: 12/07/2010 0935

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-189349		Instrument ID:	VGUFID2
Preparation:	N/A			Initial Weight/Volume:	17000 uL
Dilution:	1.0			Final Weight/Volume:	17 mL
Date Analyzed:	12/16/2010 1439			Injection Volume:	1 uL
Date Prepared:				Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	7.6		0.35
Ethylene	0.33	U	0.33

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-03D-1210**

Lab Sample ID: 680-63778-1
Client Matrix: Water

Date Sampled: 12/06/2010 1045
Date Received: 12/07/2010 0935

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-189351	Instrument ID: VGUTCD1
Preparation:	N/A		Initial Weight/Volume: 17000 uL
Dilution:	1.0		Final Weight/Volume: 17 mL
Date Analyzed:	12/16/2010 1439		Injection Volume: 1 uL
Date Prepared:			Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Methane	7100		0.19

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **BSA-MW-02D-1210**

Lab Sample ID: 680-63778-3
Client Matrix: Water

Date Sampled: 12/06/2010 1310
Date Received: 12/07/2010 0935

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-189349		Instrument ID:	VGUFID2
Preparation:	N/A			Initial Weight/Volume:	17000 uL
Dilution:	1.0			Final Weight/Volume:	17 mL
Date Analyzed:	12/16/2010 1452			Injection Volume:	1 uL
Date Prepared:				Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	12		0.35
Ethylene	0.33	U	0.33

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **BSA-MW-02D-1210**

Lab Sample ID: 680-63778-3
Client Matrix: Water

Date Sampled: 12/06/2010 1310
Date Received: 12/07/2010 0935

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-189351	Instrument ID: VGUTCD1
Preparation:	N/A		Initial Weight/Volume: 17000 uL
Dilution:	1.0		Final Weight/Volume: 17 mL
Date Analyzed:	12/16/2010 1452		Injection Volume: 1 uL
Date Prepared:			Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Methane	7100		0.19

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **BSA-MW-01S-1210**

Lab Sample ID: 680-63778-5
Client Matrix: Water

Date Sampled: 12/06/2010 1515
Date Received: 12/07/2010 0935

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-189349		Instrument ID:	VGUFID2
Preparation:	N/A			Initial Weight/Volume:	17000 uL
Dilution:	1.0			Final Weight/Volume:	17 mL
Date Analyzed:	12/16/2010 1504			Injection Volume:	1 uL
Date Prepared:				Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	0.35	U	0.35
Ethylene	0.33	U	0.33

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **BSA-MW-01S-1210**

Lab Sample ID: 680-63778-5
Client Matrix: Water

Date Sampled: 12/06/2010 1515
Date Received: 12/07/2010 0935

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-189351		Instrument ID:	VGUTCD1
Preparation:	N/A			Initial Weight/Volume:	17000 uL
Dilution:	1.0			Final Weight/Volume:	17 mL
Date Analyzed:	12/16/2010 1504			Injection Volume:	1 uL
Date Prepared:				Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Methane	6600		0.19

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-02D-1210**

Lab Sample ID: 680-63827-1
Client Matrix: Water

Date Sampled: 12/07/2010 1200
Date Received: 12/08/2010 0945

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-189349		Instrument ID:	VGUFID2
Preparation:	N/A			Initial Weight/Volume:	17000 uL
Dilution:	1.0			Final Weight/Volume:	17 mL
Date Analyzed:	12/16/2010 1530			Injection Volume:	1 uL
Date Prepared:				Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	4.6		0.35
Ethylene	0.33	U	0.33

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-02D-1210**

Lab Sample ID: 680-63827-1
Client Matrix: Water

Date Sampled: 12/07/2010 1200
Date Received: 12/08/2010 0945

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-189351	Instrument ID: VGUTCD1
Preparation:	N/A		Initial Weight/Volume: 17000 uL
Dilution:	1.0		Final Weight/Volume: 17 mL
Date Analyzed:	12/16/2010 1530		Injection Volume: 1 uL
Date Prepared:			Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Methane	2500		0.19

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-01D-1210**

Lab Sample ID: 680-63827-4
Client Matrix: Water

Date Sampled: 12/07/2010 1530
Date Received: 12/08/2010 0945

RSK-175 Dissolved Gases (GC)

Method: RSK-175
Preparation: N/A
Dilution: 1.0
Date Analyzed: 12/16/2010 1543
Date Prepared:

Analysis Batch: 680-189349

Instrument ID: VGUFID2
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Ethane	37		0.35
Ethylene	0.33	U	0.33

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-01D-1210**

Lab Sample ID: 680-63827-4
Client Matrix: Water

Date Sampled: 12/07/2010 1530
Date Received: 12/08/2010 0945

RSK-175 Dissolved Gases (GC)

Method:	RSK-175	Analysis Batch: 680-189351	Instrument ID: VGUTCD1
Preparation:	N/A		Initial Weight/Volume: 17000 uL
Dilution:	1.0		Final Weight/Volume: 17 mL
Date Analyzed:	12/16/2010 1543		Injection Volume: 1 uL
Date Prepared:			Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Methane	17000		0.19

AO 3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-03D-1210**

Lab Sample ID: 680-63778-1
Client Matrix: Water

Date Sampled: 12/06/2010 1045
Date Received: 12/07/2010 0935

6010B Metals (ICP)-Total Recoverable

Method:	6010B	Analysis Batch: 680-189108		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188816		Lab File ID:	12141015195.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/15/2010 0043			Final Weight/Volume:	50 mL
Date Prepared:	12/13/2010 1423				

Analyte	Result (mg/L)	Qualifier	RL
Iron	14		0.050
Manganese	0.70		0.010

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-03D-F(0.2)-1210**

Lab Sample ID: 680-63778-2
Client Matrix: Water

Date Sampled: 12/06/2010 1045
Date Received: 12/07/2010 0935

6010B Metals (ICP)-Dissolved

Method:	6010B	Analysis Batch: 680-189108		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188816		Lab File ID:	12141015195.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/15/2010 0048			Final Weight/Volume:	50 mL
Date Prepared:	12/13/2010 1423				

Analyte	Result (mg/L)	Qualifier	RL
Iron, Dissolved	13		0.050
Manganese, Dissolved	0.66		0.010

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **BSA-MW-02D-1210**

Lab Sample ID: 680-63778-3
Client Matrix: Water

Date Sampled: 12/06/2010 1310
Date Received: 12/07/2010 0935

6010B Metals (ICP)-Total Recoverable

Method:	6010B	Analysis Batch: 680-189108		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188816		Lab File ID:	12141015195.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/15/2010 0053			Final Weight/Volume:	50 mL
Date Prepared:	12/13/2010 1423				

Analyte	Result (mg/L)	Qualifier	RL
Iron	2.9		0.050
Manganese	0.45		0.010

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **BSA-MW-02D-F(0.2)-1210**

Lab Sample ID: 680-63778-4
Client Matrix: Water

Date Sampled: 12/06/2010 1310
Date Received: 12/07/2010 0935

6010B Metals (ICP)-Dissolved

Method:	6010B	Analysis Batch: 680-189108		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188816		Lab File ID:	12141015195.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/15/2010 0058			Final Weight/Volume:	50 mL
Date Prepared:	12/13/2010 1423				

Analyte	Result (mg/L)	Qualifier	RL
Iron, Dissolved	2.4		0.050
Manganese, Dissolved	0.45		0.010

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **BSA-MW-01S-1210**

Lab Sample ID: 680-63778-5
Client Matrix: Water

Date Sampled: 12/06/2010 1515
Date Received: 12/07/2010 0935

6010B Metals (ICP)-Total Recoverable

Method:	6010B	Analysis Batch: 680-189108		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188816		Lab File ID:	12141015195.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/15/2010 0103			Final Weight/Volume:	50 mL
Date Prepared:	12/13/2010 1423				

Analyte	Result (mg/L)	Qualifier	RL
Iron	4.2		0.050
Manganese	0.46		0.010

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **BSA-MW-01S-F(0.2)-1210**

Lab Sample ID: 680-63778-6
Client Matrix: Water

Date Sampled: 12/06/2010 1515
Date Received: 12/07/2010 0935

6010B Metals (ICP)-Dissolved

Method:	6010B	Analysis Batch: 680-189108		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188816		Lab File ID:	12141015195.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/15/2010 0108			Final Weight/Volume:	50 mL
Date Prepared:	12/13/2010 1423				

Analyte	Result (mg/L)	Qualifier	RL
Iron, Dissolved	3.5		0.050
Manganese, Dissolved	0.47		0.010

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-02D-1210**

Lab Sample ID: 680-63827-1
Client Matrix: Water

Date Sampled: 12/07/2010 1200
Date Received: 12/08/2010 0945

6010B Metals (ICP)-Total Recoverable

Method:	6010B	Analysis Batch: 680-189108		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188816		Lab File ID:	12141015195.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/15/2010 0113			Final Weight/Volume:	50 mL
Date Prepared:	12/13/2010 1423				

Analyte	Result (mg/L)	Qualifier	RL
Iron	6.8		0.050
Manganese	0.46		0.010

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-02D-F(0.2)-1210**

Lab Sample ID: 680-63827-2
Client Matrix: Water

Date Sampled: 12/07/2010 1200
Date Received: 12/08/2010 0945

6010B Metals (ICP)-Dissolved

Method:	6010B	Analysis Batch: 680-189108		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188816		Lab File ID:	12141015195.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/15/2010 0128			Final Weight/Volume:	50 mL
Date Prepared:	12/13/2010 1423				

Analyte	Result (mg/L)	Qualifier	RL
Iron, Dissolved	5.9		0.050
Manganese, Dissolved	0.46		0.010

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-01D-1210**

Lab Sample ID: 680-63827-4
Client Matrix: Water

Date Sampled: 12/07/2010 1530
Date Received: 12/08/2010 0945

6010B Metals (ICP)-Total Recoverable

Method:	6010B	Analysis Batch: 680-189108		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188816		Lab File ID:	12141015195.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/15/2010 0133			Final Weight/Volume:	50 mL
Date Prepared:	12/13/2010 1423				

Analyte	Result (mg/L)	Qualifier	RL
Iron	2.0		0.050
Manganese	0.15		0.010

AG 3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Client Sample ID: **CPA-MW-01D-F(0.2)-1210**

Lab Sample ID: 680-63827-5
Client Matrix: Water

Date Sampled: 12/07/2010 1530
Date Received: 12/08/2010 0945

6010B Metals (ICP)-Dissolved

Method:	6010B	Analysis Batch: 680-189108		Instrument ID:	ICPD
Preparation:	3005A	Prep Batch: 680-188816		Lab File ID:	12141015195.chr
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	12/15/2010 0138			Final Weight/Volume:	50 mL
Date Prepared:	12/13/2010 1423				

Analyte	Result (mg/L)	Qualifier	RL
Iron, Dissolved	1.2		0.050
Manganese, Dissolved	0.13		0.010

3/1/11

General Chemistry

Client Sample ID: **CPA-MW-03D-1210**

Lab Sample ID: 680-63778-1
Client Matrix: Water

Date Sampled: 12/06/2010 1045
Date Received: 12/07/2010 0935

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	160		mg/L	2.0	2.0	325.2
Analysis Batch: 680-189963	Date Analyzed: 12/22/2010 1546					
Nitrate as N	0.050	U	mg/L	0.050	1.0	353.2
Analysis Batch: 680-188286	Date Analyzed: 12/07/2010 1716					
Sulfate	50	U	mg/L	50	10	375.4
Analysis Batch: 680-189871	Date Analyzed: 12/22/2010 1057					
Total Organic Carbon	11		mg/L	1.0	1.0	415.1
Analysis Batch: 680-190286	Date Analyzed: 12/30/2010 0424					

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity	590		mg/L	5.0	1.0	310.1
Analysis Batch: 680-188852	Date Analyzed: 12/12/2010 1619					
Carbon Dioxide, Free	45		mg/L	5.0	1.0	310.1
Analysis Batch: 680-188852	Date Analyzed: 12/12/2010 1619					

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

General Chemistry

Client Sample ID: **CPA-MW-03D-F(0.2)-1210**

Lab Sample ID: 680-63778-2
Client Matrix: Water

Date Sampled: 12/06/2010 1045
Date Received: 12/07/2010 0935

Analyte	Result	Qual	Units	RL	Dil	Method
Dissolved Organic Carbon-Dissolved	11		mg/L	1.0	1.0	415.1

Analysis Batch: 680-188404 Date Analyzed: 12/08/2010 1000

3/11/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

General Chemistry

Client Sample ID: **BSA-MW-02D-1210**

Lab Sample ID: 680-63778-3
Client Matrix: Water

Date Sampled: 12/06/2010 1310
Date Received: 12/07/2010 0935

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	98		mg/L	1.0	1.0	325.2
Analysis Batch: 680-189963	Date Analyzed: 12/22/2010 1542					
Nitrate as N	0.050	U	mg/L	0.050	1.0	353.2
Analysis Batch: 680-188286	Date Analyzed: 12/07/2010 1719					
Sulfate	5.0	U	mg/L	5.0	1.0	375.4
Analysis Batch: 680-189871	Date Analyzed: 12/22/2010 1030					
Total Organic Carbon	6.2		mg/L	1.0	1.0	415.1
Analysis Batch: 680-190286	Date Analyzed: 12/30/2010 0424					

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity	610		mg/L	5.0	1.0	310.1
Analysis Batch: 680-188852	Date Analyzed: 12/12/2010 1630					
Carbon Dioxide, Free	43		mg/L	5.0	1.0	310.1
Analysis Batch: 680-188852	Date Analyzed: 12/12/2010 1630					

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

General Chemistry

Client Sample ID: **BSA-MW-02D-F(0.2)-1210**

Lab Sample ID: 680-63778-4
Client Matrix: Water

Date Sampled: 12/06/2010 1310
Date Received: 12/07/2010 0935

Analyte	Result	Qual	Units	RL	Dil	Method
Dissolved Organic Carbon-Dissolved	6.2		mg/L	1.0	1.0	415.1

Analysis Batch: 680-188404 Date Analyzed: 12/08/2010 1000

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

General Chemistry

Client Sample ID: **BSA-MW-01S-1210**

Lab Sample ID: 680-63778-5
Client Matrix: Water

Date Sampled: 12/06/2010 1515
Date Received: 12/07/2010 0935

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	170		mg/L	2.0	2.0	325.2
Analysis Batch: 680-189963	Date Analyzed: 12/22/2010 1546					
Nitrate as N	0.050	U	mg/L	0.050	1.0	353.2
Analysis Batch: 680-188286	Date Analyzed: 12/07/2010 1721					
Sulfate	5.0	U	mg/L	5.0	1.0	375.4
Analysis Batch: 680-189871	Date Analyzed: 12/22/2010 1032					
Total Organic Carbon	6.1		mg/L	1.0	1.0	415.1
Analysis Batch: 680-190286	Date Analyzed: 12/30/2010 0424					

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity	780		mg/L	5.0	1.0	310.1
Analysis Batch: 680-188852	Date Analyzed: 12/12/2010 1642					
Carbon Dioxide, Free	33		mg/L	5.0	1.0	310.1
Analysis Batch: 680-188852	Date Analyzed: 12/12/2010 1642					

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

General Chemistry

Client Sample ID: **BSA-MW-01S-F(0.2)-1210**

Lab Sample ID: 680-63778-6
Client Matrix: Water

Date Sampled: 12/06/2010 1515
Date Received: 12/07/2010 0935

Analyte	Result	Qual	Units	RL	Dil	Method
Dissolved Organic Carbon-Dissolved	6.6		mg/L	1.0	1.0	415.1

Analysis Batch: 680-188404 Date Analyzed: 12/08/2010 1000

3/1/11

General Chemistry

Client Sample ID: CPA-MW-02D-1210

Lab Sample ID: 680-63827-1
Client Matrix: Water

Date Sampled: 12/07/2010 1200
Date Received: 12/08/2010 0945

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	54		mg/L	1.0	1.0	325.2
Analysis Batch: 680-189963	Date Analyzed: 12/22/2010 1542					
Nitrate as N	0.050	U	mg/L	0.050	1.0	353.2
Analysis Batch: 680-188845	Date Analyzed: 12/08/2010 1624					
Sulfate	5.0	U	mg/L	5.0	1.0	375.4
Analysis Batch: 680-189871	Date Analyzed: 12/22/2010 1032					
Total Organic Carbon	11		mg/L	1.0	1.0	415.1
Analysis Batch: 680-190286	Date Analyzed: 12/30/2010 0424					

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity	490		mg/L	5.0	1.0	310.1
Analysis Batch: 680-189751	Date Analyzed: 12/21/2010 1259					
Carbon Dioxide, Free	9.5		mg/L	5.0	1.0	310.1
Analysis Batch: 680-189751	Date Analyzed: 12/21/2010 1259					

3/1/11

General Chemistry

Client Sample ID: **CPA-MW-02D-F(0.2)-1210**

Lab Sample ID: 680-63827-2
Client Matrix: Water

Date Sampled: 12/07/2010 1200
Date Received: 12/08/2010 0945

Analyte	Result	Qual	Units	RL	Dil	Method
Dissolved Organic Carbon-Dissolved	11		mg/L	1.0	1.0	415.1

Analysis Batch: 680-190316 Date Analyzed: 12/29/2010 0044

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

General Chemistry

Client Sample ID: **CPA-MW-01D-1210**

Lab Sample ID: 680-63827-4
Client Matrix: Water

Date Sampled: 12/07/2010 1530
Date Received: 12/08/2010 0945

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	130		mg/L	2.0	2.0	325.2
Analysis Batch: 680-189963	Date Analyzed: 12/22/2010 1546					
Nitrate as N	0.050	U	mg/L	0.050	1.0	353.2
Analysis Batch: 680-188845	Date Analyzed: 12/08/2010 1625					
Sulfate	15		mg/L	5.0	1.0	375.4
Analysis Batch: 680-189871	Date Analyzed: 12/22/2010 1032					
Total Organic Carbon	16		mg/L	1.0	1.0	415.1
Analysis Batch: 680-190286	Date Analyzed: 12/30/2010 0424					

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity	990		mg/L	5.0	1.0	310.1
Analysis Batch: 680-189751	Date Analyzed: 12/21/2010 1250					
Carbon Dioxide, Free	5.0	U	mg/L	5.0	1.0	310.1
Analysis Batch: 680-189751	Date Analyzed: 12/21/2010 1250					

3/1/11

General Chemistry

Client Sample ID: **CPA-MW-01D-F(0.2)-1210**

Lab Sample ID: 680-63827-5
Client Matrix: Water

Date Sampled: 12/07/2010 1530
Date Received: 12/08/2010 0945

Analyte	Result	Qual	Units	RL	Dil	Method
Dissolved Organic Carbon-Dissolved	11		mg/L	1.0	1.0	415.1

Analysis Batch: 680-190316 Date Analyzed: 12/29/2010 0044

3/1/11

DATA REPORTING QUALIFIERS

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Indicates the analyte was analyzed for but not detected.
	E	Result exceeded calibration range.
	D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
GC VOA		
	U	Indicates the analyte was analyzed for but not detected.
Metals		
	U	Indicates the analyte was analyzed for but not detected.
General Chemistry		
	U	Indicates the analyte was analyzed for but not detected.

3/11/11

QUALITY CONTROL RESULTS

3/11/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:680-189432					
LCS 680-189432/4	Lab Control Sample	T	Water	8260B	
LCSD 680-189432/5	Lab Control Sample Duplicate	T	Water	8260B	
MB 680-189432/7	Method Blank	T	Water	8260B	
680-63778-1	CPA-MW-03D-1210	T	Water	8260B	
680-63778-3	BSA-MW-02D-1210	T	Water	8260B	
680-63778-5	BSA-MW-01S-1210	T	Water	8260B	
680-63778-7TB	Trip Blank #3 LTM 4Q10	T	Water	8260B	
Analysis Batch:680-189475					
LCS 680-189475/21	Lab Control Sample	T	Water	8260B	
LCSD 680-189475/22	Lab Control Sample Duplicate	T	Water	8260B	
MB 680-189475/24	Method Blank	T	Water	8260B	
680-63827-1	CPA-MW-02D-1210	T	Water	8260B	
680-63827-3FD	CPA-MW-02D-1210-AD	T	Water	8260B	
680-63827-4	CPA-MW-01D-1210	T	Water	8260B	
680-63827-6TB	4Q10 LTM TRIP BLANK #3	T	Water	8260B	
Analysis Batch:680-189651					
LCS 680-189651/7	Lab Control Sample	T	Water	8260B	
LCSD 680-189651/8	Lab Control Sample Duplicate	T	Water	8260B	
MB 680-189651/10	Method Blank	T	Water	8260B	
680-63778-3DL	BSA-MW-02D-1210	T	Water	8260B	

Report Basis
T = Total

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC VOA					
Analysis Batch:680-189349					
LCS 680-189349/24	Lab Control Sample	T	Water	RSK-175	
LCSD 680-189349/26	Lab Control Sample Duplicate	T	Water	RSK-175	
MB 680-189349/25	Method Blank	T	Water	RSK-175	
680-63778-1	CPA-MW-03D-1210	T	Water	RSK-175	
680-63778-3	BSA-MW-02D-1210	T	Water	RSK-175	
680-63778-5	BSA-MW-01S-1210	T	Water	RSK-175	
680-63827-1	CPA-MW-02D-1210	T	Water	RSK-175	
680-63827-4	CPA-MW-01D-1210	T	Water	RSK-175	
Analysis Batch:680-189351					
LCS 680-189351/17	Lab Control Sample	T	Water	RSK-175	
LCSD 680-189351/19	Lab Control Sample Duplicate	T	Water	RSK-175	
MB 680-189351/18	Method Blank	T	Water	RSK-175	
680-63778-1	CPA-MW-03D-1210	T	Water	RSK-175	
680-63778-3	BSA-MW-02D-1210	T	Water	RSK-175	
680-63778-5	BSA-MW-01S-1210	T	Water	RSK-175	
680-63827-1	CPA-MW-02D-1210	T	Water	RSK-175	
680-63827-4	CPA-MW-01D-1210	T	Water	RSK-175	

Report Basis
T = Total

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 680-188816					
LCS 680-188816/19-A	Lab Control Sample	R	Water	3005A	
MB 680-188816/18-A	Method Blank	R	Water	3005A	
680-63778-1	CPA-MW-03D-1210	R	Water	3005A	
680-63778-2	CPA-MW-03D-F(0.2)-1210	D	Water	3005A	
680-63778-3	BSA-MW-02D-1210	R	Water	3005A	
680-63778-4	BSA-MW-02D-F(0.2)-1210	D	Water	3005A	
680-63778-5	BSA-MW-01S-1210	R	Water	3005A	
680-63778-6	BSA-MW-01S-F(0.2)-1210	D	Water	3005A	
680-63827-1	CPA-MW-02D-1210	R	Water	3005A	
680-63827-2	CPA-MW-02D-F(0.2)-1210	D	Water	3005A	
680-63827-4	CPA-MW-01D-1210	R	Water	3005A	
680-63827-5	CPA-MW-01D-F(0.2)-1210	D	Water	3005A	
Analysis Batch:680-189108					
LCS 680-188816/19-A	Lab Control Sample	R	Water	6010B	680-188816
MB 680-188816/18-A	Method Blank	R	Water	6010B	680-188816
680-63778-1	CPA-MW-03D-1210	R	Water	6010B	680-188816
680-63778-2	CPA-MW-03D-F(0.2)-1210	D	Water	6010B	680-188816
680-63778-3	BSA-MW-02D-1210	R	Water	6010B	680-188816
680-63778-4	BSA-MW-02D-F(0.2)-1210	D	Water	6010B	680-188816
680-63778-5	BSA-MW-01S-1210	R	Water	6010B	680-188816
680-63778-6	BSA-MW-01S-F(0.2)-1210	D	Water	6010B	680-188816
680-63827-1	CPA-MW-02D-1210	R	Water	6010B	680-188816
680-63827-2	CPA-MW-02D-F(0.2)-1210	D	Water	6010B	680-188816
680-63827-4	CPA-MW-01D-1210	R	Water	6010B	680-188816
680-63827-5	CPA-MW-01D-F(0.2)-1210	D	Water	6010B	680-188816

Report Basis
D = Dissolved
R = Total Recoverable

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:680-188286					
LCS 680-188286/1	Lab Control Sample	T	Water	353.2	
MB 680-188286/2	Method Blank	T	Water	353.2	
680-63778-1	CPA-MW-03D-1210	T	Water	353.2	
680-63778-3	BSA-MW-02D-1210	T	Water	353.2	
680-63778-5	BSA-MW-01S-1210	T	Water	353.2	
Analysis Batch:680-188404					
680-63778-2	CPA-MW-03D-F(0.2)-1210	D	Water	415.1	
680-63778-4	BSA-MW-02D-F(0.2)-1210	D	Water	415.1	
680-63778-6	BSA-MW-01S-F(0.2)-1210	D	Water	415.1	
Analysis Batch:680-188845					
LCS 680-188845/2	Lab Control Sample	T	Water	353.2	
MB 680-188845/1	Method Blank	T	Water	353.2	
680-63827-1	CPA-MW-02D-1210	T	Water	353.2	
680-63827-4	CPA-MW-01D-1210	T	Water	353.2	
Analysis Batch:680-188852					
LCS 680-188852/3	Lab Control Sample	T	Water	310.1	
LCSD 680-188852/29	Lab Control Sample Duplicate	T	Water	310.1	
MB 680-188852/2	Method Blank	T	Water	310.1	
680-63778-1	CPA-MW-03D-1210	T	Water	310.1	
680-63778-3	BSA-MW-02D-1210	T	Water	310.1	
680-63778-5	BSA-MW-01S-1210	T	Water	310.1	
Analysis Batch:680-189751					
LCS 680-189751/3	Lab Control Sample	T	Water	310.1	
LCSD 680-189751/29	Lab Control Sample Duplicate	T	Water	310.1	
MB 680-189751/2	Method Blank	T	Water	310.1	
680-63827-1	CPA-MW-02D-1210	T	Water	310.1	
680-63827-1DU	Duplicate	T	Water	310.1	
680-63827-4	CPA-MW-01D-1210	T	Water	310.1	
Analysis Batch:680-189871					
LCS 680-189871/2	Lab Control Sample	T	Water	375.4	
MB 680-189871/1	Method Blank	T	Water	375.4	
680-63778-1	CPA-MW-03D-1210	T	Water	375.4	
680-63778-1MS	Matrix Spike	T	Water	375.4	
680-63778-1MSD	Matrix Spike Duplicate	T	Water	375.4	
680-63778-3	BSA-MW-02D-1210	T	Water	375.4	
680-63778-5	BSA-MW-01S-1210	T	Water	375.4	
680-63827-1	CPA-MW-02D-1210	T	Water	375.4	
680-63827-4	CPA-MW-01D-1210	T	Water	375.4	

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Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:680-189963					
LCS 680-189963/4	Lab Control Sample	T	Water	325.2	
MB 680-189963/1	Method Blank	T	Water	325.2	
680-63778-1	CPA-MW-03D-1210	T	Water	325.2	
680-63778-1DU	Duplicate	T	Water	325.2	
680-63778-3	BSA-MW-02D-1210	T	Water	325.2	
680-63778-5	BSA-MW-01S-1210	T	Water	325.2	
680-63827-1	CPA-MW-02D-1210	T	Water	325.2	
680-63827-4	CPA-MW-01D-1210	T	Water	325.2	
Analysis Batch:680-190286					
LCS 680-190286/2	Lab Control Sample	T	Water	415.1	
MB 680-190286/1	Method Blank	T	Water	415.1	
680-63778-1	CPA-MW-03D-1210	T	Water	415.1	
680-63778-3	BSA-MW-02D-1210	T	Water	415.1	
680-63778-5	BSA-MW-01S-1210	T	Water	415.1	
680-63827-1	CPA-MW-02D-1210	T	Water	415.1	
680-63827-4	CPA-MW-01D-1210	T	Water	415.1	
Analysis Batch:680-190316					
LCS 680-190316/2	Lab Control Sample	D	Water	415.1	
MB 680-190316/1	Method Blank	D	Water	415.1	
680-63827-2	CPA-MW-02D-F(0.2)-1210	D	Water	415.1	
680-63827-5	CPA-MW-01D-F(0.2)-1210	D	Water	415.1	

Report Basis
D = Dissolved
T = Total

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Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	BFB %Rec	DBFM %Rec	TOL %Rec
680-63778-1	CPA-MW-03D-1210	93	92	107
680-63778-3	BSA-MW-02D-1210	92	91	106
680-63778-3 DL	BSA-MW-02D-1210 DL	98	105	110
680-63778-5	BSA-MW-01S-1210	94	91	105
680-63778-7	Trip Blank #3 LTM 4Q10	90	95	109
680-63827-1	CPA-MW-02D-1210	93	92	109
680-63827-3	CPA-MW-02D-1210-AD	94	96	110
680-63827-4	CPA-MW-01D-1210	92	92	108
680-63827-6	4Q10 LTM TRIP BLANK #3	93	97	109
MB 680-189432/7		90	96	107
MB 680-189475/24		94	97	107
MB 680-189651/10		96	103	108
LCS 680-189432/4		98	105	105
LCS 680-189475/21		98	102	103
LCS 680-189651/7		102	113	106
LCSD 680-189432/5		97	103	105
LCSD 680-189475/22		98	104	103
LCSD 680-189651/8		102	112	105

Surrogate	Acceptance Limits
BFB = 4-Bromofluorobenzene	70-130
DBFM = Dibromofluoromethane	70-130
TOL = Toluene-d8 (Surr)	70-130

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Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-189432

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 680-189432/7
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/17/2010 2251
Date Prepared: 12/17/2010 2251

Analysis Batch: 680-189432
Prep Batch: N/A
Units: ug/L

Instrument ID: MSO
Lab File ID: oq475.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Benzene	1.0	U	1.0
Chlorobenzene	1.0	U	1.0
1,2-Dichlorobenzene	1.0	U	1.0
1,3-Dichlorobenzene	1.0	U	1.0
1,4-Dichlorobenzene	1.0	U	1.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	90	70 - 130
Dibromofluoromethane	96	70 - 130
Toluene-d8 (Surr)	107	70 - 130

AG 3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-189432

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 680-189432/4	Analysis Batch:	680-189432	Instrument ID:	MSO
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	oq471.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/17/2010 2128			Final Weight/Volume:	5 mL
Date Prepared:	12/17/2010 2128				

LCSD Lab Sample ID:	LCSD 680-189432/5	Analysis Batch:	680-189432	Instrument ID:	MSO
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	oq472.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/17/2010 2149			Final Weight/Volume:	5 mL
Date Prepared:	12/17/2010 2149				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	109	108	70 - 130	1	30		
Chlorobenzene	103	102	70 - 130	1	30		
1,2-Dichlorobenzene	102	100	70 - 130	1	30		
1,3-Dichlorobenzene	99	101	70 - 130	1	30		
1,4-Dichlorobenzene	99	98	70 - 130	1	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	98	97	70 - 130
Dibromofluoromethane	105	103	70 - 130
Toluene-d8 (Surr)	105	105	70 - 130

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Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-189475

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 680-189475/24
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/18/2010 0936
Date Prepared: 12/18/2010 0936

Analysis Batch: 680-189475
Prep Batch: N/A
Units: ug/L

Instrument ID: MSO
Lab File ID: oq489.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Benzene	1.0	U	1.0
Chlorobenzene	1.0	U	1.0
1,2-Dichlorobenzene	1.0	U	1.0
1,3-Dichlorobenzene	1.0	U	1.0
1,4-Dichlorobenzene	1.0	U	1.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	94	70 - 130
Dibromofluoromethane	97	70 - 130
Toluene-d8 (Surr)	107	70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-189475

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 680-189475/21	Analysis Batch:	680-189475	Instrument ID:	MSO
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	oq481.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/18/2010 0742			Final Weight/Volume:	5 mL
Date Prepared:	12/18/2010 0742				

LCSD Lab Sample ID:	LCSD 680-189475/22	Analysis Batch:	680-189475	Instrument ID:	MSO
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	oq483.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/18/2010 0810			Final Weight/Volume:	5 mL
Date Prepared:	12/18/2010 0810				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	107	107	70 - 130	0	30		
Chlorobenzene	101	102	70 - 130	1	30		
1,2-Dichlorobenzene	105	103	70 - 130	2	30		
1,3-Dichlorobenzene	101	102	70 - 130	1	30		
1,4-Dichlorobenzene	102	101	70 - 130	0	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	98	98	70 - 130
Dibromofluoromethane	102	104	70 - 130
Toluene-d8 (Surr)	103	103	70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-189651

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 680-189651/10
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/20/2010 1757
Date Prepared: 12/20/2010 1757

Analysis Batch: 680-189651
Prep Batch: N/A
Units: ug/L

Instrument ID: MSP2
Lab File ID: pq118.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Benzene	1.0	U	1.0
Chlorobenzene	1.0	U	1.0
1,2-Dichlorobenzene	1.0	U	1.0
1,3-Dichlorobenzene	1.0	U	1.0
1,4-Dichlorobenzene	1.0	U	1.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	96	70 - 130
Dibromofluoromethane	103	70 - 130
Toluene-d8 (Surr)	108	70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-189651

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 680-189651/7	Analysis Batch:	680-189651	Instrument ID:	MSP2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	pq110.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/20/2010 1601			Final Weight/Volume:	5 mL
Date Prepared:	12/20/2010 1601				

LCSD Lab Sample ID:	LCSD 680-189651/8	Analysis Batch:	680-189651	Instrument ID:	MSP2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	pq112.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	12/20/2010 1630			Final Weight/Volume:	5 mL
Date Prepared:	12/20/2010 1630				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	98	97	70 - 130	1	30		
Chlorobenzene	106	106	70 - 130	1	30		
1,2-Dichlorobenzene	110	111	70 - 130	0	30		
1,3-Dichlorobenzene	110	111	70 - 130	1	30		
1,4-Dichlorobenzene	112	112	70 - 130	0	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	102	102	70 - 130
Dibromofluoromethane	113	112	70 - 130
Toluene-d8 (Surr)	106	105	70 - 130

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-189349

Method: RSK-175
Preparation: N/A

Lab Sample ID: MB 680-189349/25
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/16/2010 1226
Date Prepared: N/A

Analysis Batch: 680-189349
Prep Batch: N/A
Units: ug/L

Instrument ID: VGUFID2
Lab File ID: UQ331.D
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	Result	Qual	RL
Ethane	0.35	U	0.35
Ethylene	0.33	U	0.33
Methane	0.19	U	0.19

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-189349

Method: RSK-175
Preparation: N/A

LCS Lab Sample ID: LCS 680-189349/24
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/16/2010 1200
Date Prepared: N/A

Analysis Batch: 680-189349
Prep Batch: N/A
Units: ug/L

Instrument ID: VGUFID2
Lab File ID: UQ329.D
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 680-189349/26
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/16/2010 1934
Date Prepared: N/A

Analysis Batch: 680-189349
Prep Batch: N/A
Units: ug/L

Instrument ID: VGUFID2
Lab File ID: UQ334.D
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Ethane	120	109	75 - 125	10	30		
Ethylene	118	103	75 - 125	14	30		
Methane	117	108	75 - 125	8	30		

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-189351

Method: RSK-175
Preparation: N/A

Lab Sample ID: MB 680-189351/18
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/16/2010 1226
Date Prepared: N/A

Analysis Batch: 680-189351
Prep Batch: N/A
Units: ug/L

Instrument ID: VGUTCD1
Lab File ID: UQ331.D
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	Result	Qual	RL
Methane	0.19	U	0.19

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-189351

Method: RSK-175
Preparation: N/A

LCS Lab Sample ID: LCS 680-189351/17
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/16/2010 1135
Date Prepared: N/A

Analysis Batch: 680-189351
Prep Batch: N/A
Units: ug/L

Instrument ID: VGUTCD1
Lab File ID: UQ327.D
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 680-189351/19
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/16/2010 1921
Date Prepared: N/A

Analysis Batch: 680-189351
Prep Batch: N/A
Units: ug/L

Instrument ID: VGUTCD1
Lab File ID: UQ333.D
Initial Weight/Volume: 17000 uL
Final Weight/Volume: 17 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methane	103	97	75 - 125	6	30		

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-188816

Method: 6010B
Preparation: 3005A
Total Recoverable

Lab Sample ID: MB 680-188816/18-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/15/2010 1104
Date Prepared: 12/13/2010 1423

Analysis Batch: 680-189108
Prep Batch: 680-188816
Units: mg/L

Instrument ID: ICPD
Lab File ID: 12141015195.chr
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Iron	0.050	U	0.050
Iron, Dissolved	0.050	U	0.050
Manganese	0.010	U	0.010
Manganese, Dissolved	0.010	U	0.010

Lab Control Sample - Batch: 680-188816

Method: 6010B
Preparation: 3005A
Total Recoverable

Lab Sample ID: LCS 680-188816/19-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/14/2010 2332
Date Prepared: 12/13/2010 1423

Analysis Batch: 680-189108
Prep Batch: 680-188816
Units: mg/L

Instrument ID: ICPD
Lab File ID: 12141015195.chr
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Iron	1.00	0.983	98	75 - 125	
Iron, Dissolved	1.00	0.983	98	75 - 125	
Manganese	0.500	0.504	101	75 - 125	
Manganese, Dissolved	0.500	0.504	101	75 - 125	

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-188852

Method: 310.1
Preparation: N/A

Lab Sample ID: MB 680-188852/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/12/2010 1447
Date Prepared: N/A

Analysis Batch: 680-188852
Prep Batch: N/A
Units: mg/L

Instrument ID: MANTECH
Lab File ID: alk121210c.TXT
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

Analyte	Result	Qual	RL
Alkalinity	5.0	U	5.0
Carbon Dioxide, Free	5.0	U	5.0

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-188852

Method: 310.1
Preparation: N/A

LCS Lab Sample ID: LCS 680-188852/3
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/12/2010 1456
Date Prepared: N/A

Analysis Batch: 680-188852
Prep Batch: N/A
Units: mg/L

Instrument ID: MANTECH
Lab File ID: alk121210c.TXT
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

LCSD Lab Sample ID: LCSD 680-188852/29
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/12/2010 1747
Date Prepared: N/A

Analysis Batch: 680-188852
Prep Batch: N/A
Units: mg/L

Instrument ID: MANTECH
Lab File ID: alk121210c.TXT
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Alkalinity	95	92	80 - 120	3	30		

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-189751

Method: 310.1
Preparation: N/A

Lab Sample ID: MB 680-189751/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/21/2010 1152
Date Prepared: N/A

Analysis Batch: 680-189751
Prep Batch: N/A
Units: mg/L

Instrument ID: MANTECH
Lab File ID: alk122110a.TXT
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 1.0 mL

Analyte	Result	Qual	RL
Alkalinity	5.0	U	5.0
Carbon Dioxide, Free	5.0	U	5.0

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-189751

Method: 310.1
Preparation: N/A

LCS Lab Sample ID: LCS 680-189751/3
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/21/2010 1201
Date Prepared: N/A

Analysis Batch: 680-189751
Prep Batch: N/A
Units: mg/L

Instrument ID: MANTECH
Lab File ID: alk122110a.TXT
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 1.0 mL

LCSD Lab Sample ID: LCSD 680-189751/29
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/21/2010 1507
Date Prepared: N/A

Analysis Batch: 680-189751
Prep Batch: N/A
Units: mg/L

Instrument ID: MANTECH
Lab File ID: alk122110a.TXT
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 1.0 mL

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Alkalinity	96	89	80 - 120	7	30		

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Duplicate - Batch: 680-189751

Method: 310.1
Preparation: N/A

Lab Sample ID: 680-63827-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/21/2010 1310
Date Prepared: N/A

Analysis Batch: 680-189751
Prep Batch: N/A
Units: mg/L

Instrument ID: MANTECH
Lab File ID: alk122110a.TXT
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 1.0 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Alkalinity	490	531	7	30	
Carbon Dioxide, Free	9.5	10.2	7	30	

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-189963

Method: 325.2
Preparation: N/A

Lab Sample ID: MB 680-189963/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/22/2010 1514
Date Prepared: N/A

Analysis Batch: 680-189963
Prep Batch: N/A
Units: mg/L

Instrument ID: KONELAB1
Lab File ID: KONE11222101CLA.xls
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Result	Qual	RL
Chloride	1.0	U	1.0

Lab Control Sample - Batch: 680-189963

Method: 325.2
Preparation: N/A

Lab Sample ID: LCS 680-189963/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/22/2010 1524
Date Prepared: N/A

Analysis Batch: 680-189963
Prep Batch: N/A
Units: mg/L

Instrument ID: KONELAB1
Lab File ID: KONE11222101CLA.xls
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride	50.0	48.5	97	85 - 115	

Duplicate - Batch: 680-189963

Method: 325.2
Preparation: N/A

Lab Sample ID: 680-63778-1
Client Matrix: Water
Dilution: 2.0
Date Analyzed: 12/22/2010 1546
Date Prepared: N/A

Analysis Batch: 680-189963
Prep Batch: N/A
Units: mg/L

Instrument ID: KONELAB1
Lab File ID: KONE11222101CLA.xls
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Chloride	160	160	0.1	30	

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-188286

Method: 353.2
Preparation: N/A

Lab Sample ID: MB 680-188286/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/07/2010 1616
Date Prepared: N/A

Analysis Batch: 680-188286
Prep Batch: N/A
Units: mg/L

Instrument ID: Latchat 2
Lab File ID: OM_12-7-2010_15-21-35.OMI
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Result	Qual	RL
Nitrate as N	0.050	U	0.050
Nitrate Nitrite as N	0.050	U	0.050
Nitrite as N	0.050	U	0.050

Lab Control Sample - Batch: 680-188286

Method: 353.2
Preparation: N/A

Lab Sample ID: LCS 680-188286/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/07/2010 1615
Date Prepared: N/A

Analysis Batch: 680-188286
Prep Batch: N/A
Units: mg/L

Instrument ID: Latchat 2
Lab File ID: OM_12-7-2010_15-21-35.OMI
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N	1.00	0.998	100	90 - 110	
Nitrite as N	0.500	0.496	99	90 - 110	

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-188845

Method: 353.2
Preparation: N/A

Lab Sample ID: MB 680-188845/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/08/2010 1602
Date Prepared: N/A

Analysis Batch: 680-188845
Prep Batch: N/A
Units: mg/L

Instrument ID: Latchat 2
Lab File ID: OM_12-8-2010_15-35-13.OMI
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Result	Qual	RL
Nitrate as N	0.050	U	0.050
Nitrate Nitrite as N	0.050	U	0.050
Nitrite as N	0.050	U	0.050

Lab Control Sample - Batch: 680-188845

Method: 353.2
Preparation: N/A

Lab Sample ID: LCS 680-188845/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/08/2010 1603
Date Prepared: N/A

Analysis Batch: 680-188845
Prep Batch: N/A
Units: mg/L

Instrument ID: Latchat 2
Lab File ID: OM_12-8-2010_15-35-13.OMI
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N	1.00	0.993	99	90 - 110	
Nitrite as N	0.500	0.495	99	90 - 110	

3/1/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-189871

Method: 375.4
Preparation: N/A

Lab Sample ID: MB 680-189871/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/22/2010 1030
Date Prepared: N/A

Analysis Batch: 680-189871
Prep Batch: N/A
Units: mg/L

Instrument ID: KONELAB1
Lab File ID: KONE11222101SO4A.xls
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Result	Qual	RL
Sulfate	5.0	U	5.0

Lab Control Sample - Batch: 680-189871

Method: 375.4
Preparation: N/A

Lab Sample ID: LCS 680-189871/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/22/2010 1030
Date Prepared: N/A

Analysis Batch: 680-189871
Prep Batch: N/A
Units: mg/L

Instrument ID: KONELAB1
Lab File ID: KONE11222101SO4A.xls
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Sulfate	20.0	19.0	95	75 - 125	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 680-189871

Method: 375.4
Preparation: N/A

MS Lab Sample ID: 680-63778-1
Client Matrix: Water
Dilution: 10
Date Analyzed: 12/22/2010 1057
Date Prepared: N/A

Analysis Batch: 680-189871
Prep Batch: N/A

Instrument ID: KONELAB1
Lab File ID: KONE11222101SO4A.xls
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

MSD Lab Sample ID: 680-63778-1
Client Matrix: Water
Dilution: 10
Date Analyzed: 12/22/2010 1057
Date Prepared: N/A

Analysis Batch: 680-189871
Prep Batch: N/A

Instrument ID: KONELAB1
Lab File ID: KONE11222101SO4A.xls
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Sulfate	102	88	75 - 125	14	30		

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-190286

Method: 415.1
Preparation: N/A

Lab Sample ID: MB 680-190286/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/30/2010 0424
Date Prepared: N/A

Analysis Batch: 680-190286
Prep Batch: N/A
Units: mg/L

Instrument ID: TOC3
Lab File ID: N/A
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

Analyte	Result	Qual	RL
Total Organic Carbon	1.0	U	1.0

Lab Control Sample - Batch: 680-190286

Method: 415.1
Preparation: N/A

Lab Sample ID: LCS 680-190286/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/30/2010 0424
Date Prepared: N/A

Analysis Batch: 680-190286
Prep Batch: N/A
Units: mg/L

Instrument ID: TOC3
Lab File ID: N/A
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Total Organic Carbon	20.0	19.4	97	80 - 120	

31/11

Client: Solutia Inc.

Job Number: 680-63778-1
Sdg Number: KPS062

Method Blank - Batch: 680-190316

Method: 415.1
Preparation: N/A

Lab Sample ID: MB 680-190316/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/29/2010 0044
Date Prepared: N/A

Analysis Batch: 680-190316
Prep Batch: N/A
Units: mg/L

Instrument ID: TOC3
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 25 mL

Analyte	Result	Qual	RL
Dissolved Organic Carbon-Dissolved	1.0	U	1.0

Lab Control Sample - Batch: 680-190316

Method: 415.1
Preparation: N/A

Lab Sample ID: LCS 680-190316/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/29/2010 0044
Date Prepared: N/A

Analysis Batch: 680-190316
Prep Batch: N/A
Units: mg/L

Instrument ID: TOC3
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 25 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Dissolved Organic Carbon-Dissolved	20.0	19.4	97	80 - 120	

Serial Number U35188

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PAGE 1 OF 1

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE) IL
WGK LTM 4Q10		
TAL (LAB) PROJECT MANAGER: GM RINALDI	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: GM RINALDI	CLIENT PHONE: 314-674-3312	CLIENT FAX: 314-674-8805
CLIENT NAME: SOLUTIA, INC	CLIENT E-MAIL: gmrinaldi@solutia.com	
CLIENT ADDRESS: 575 MARYVILLE CENTRE DR. ST LOUIS, MO 63141		
COMPANY CONTRACTING THIS WORK (if applicable)		

MATRIX TYPE (COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); SOLID OR SEMISOLID; AIR; NONAQUEOUS LIQUID (OIL, SOLVENT, ...))

REQUIRED ANALYSIS

STANDARD REPORT DELIVERY ⊗
DATE DUE
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE
NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMP (C) OR GRAB (G)	MATRIX: AQUEOUS (A)	VOC 8260 HCl	Total Fe/Mn 6010B HNO3	Alk a/CO2 310.1 None	Chloride 325.2 Sulfate 375.4 None	Methane RSK Ethene Ethane HCl	Nitrate 353.2 H2SO4	TOC 415.1 HCl	Diss Fe/Mn 6010B HNO3	DOC 415.1 HCl	REMARKS
					NUMBER OF CONTAINERS SUBMITTED									
12-6-10	1045	CPA-MW-03D-1210	G	A	3	1	1	1	3	2	1			
12-6-10	1045	CPA-MW-02D-F(0.2)-1210	G	A							1	1	1	Filtered
12-6-10	1310	BSA-MW-02D-1210	G	A	3	1	1	1	3	2	1			
12-6-10	1310	BSA-MW-02D-F(0.2)-1210	G	A							1	1	1	Filtered
12-6-10	1515	BSA-MW-01S-1210	G	A	3	1	1	1	3	2	1			
12-6-10	1515	BSA-MW-01S-(F(0.2)-1210	G	A								1	1	Filtered
12-6-10	—	TRIP BLANK #3 LTM 4Q10		A	2									

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	12-6-10	1700						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
	12/7/10	0935	YES ○ NO ○		680-63778	2, 4°C

TAL-8240-680 (1008)

Serial Number 033941

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
WGK-LTM-4Q10		IL

TAL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
SM LIDYA GULIZIA		

CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
GM RINALDI	314-674-3312	314-674-8808

CLIENT NAME	CLIENT E-MAIL
SOLUTIA, INC	gmrina@solutia.com

CLIENT ADDRESS: 575 MARYVILLE CENTER DR ST. LOUIS, MO 63141

COMPANY CONTRACTING THIS WORK (if applicable)

PAGE 1 OF 1

STANDARD REPORT DELIVERY ⊗
DATE DUE
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	MATRIX: COMPOSITE (C) OR GRAB (G) INDICATE	MATRIX: AQUEOUS (WATER)	MATRIX: SOLID OR SEMISOLID	MATRIX: AIR	MATRIX: NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: VOC 8260 (HCl)	Total Fe/Mn 6010B (HNO3)	Alk/CO_2 310.1 (none)	Chloride 325.2 Sulfate 375.4 (none)	Methane RSK 175 Ethane Ethene (HCl)	Nitrate 353.2 (H_2SO_4)	TOC 415.1 (HCl)	Diss Fe/Mn 6010B (HNO3)	DOC 415.1 (HCl)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
10-7-10	1200	CPA-MW-02D-1210	G	A				3	1	1	1	3	2	1				
	1200	CPA-MW-02D-F(0.2)-1210	G	A											1	1		Filtered
	1200	CPA-MW-02D-1210-AD	G	A				3										
	1530	CPA-MW-01D-1210	G	A				3	1	1	1	3	2	1				
	1530	CPA-MW-01D-F(0.2)-120	G	A											1	1		Filtered
	—	4Q10 LTM TRIP BLANK #3																

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PRESERVATIVE

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	10-7-10	1700						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
	12/8/10	0945	YES ○ NO ○		680-63827	0.4°C

TAL 8240-680 (1008)

Login Sample Receipt Check List

Client: Solutia Inc.

Job Number: 680-63778-1
SDG Number: KPS062

Login Number: 63778
Creator: Hornsby, Jess
List Number: 1

List Source: TestAmerica Savannah

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
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	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4 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?	True	
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.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	all TOC bottles have pH=2 or greater than 2
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	MS/MSD received in previous SDG.
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

AG 3/11/11

Login Sample Receipt Check List

Client: Solutia Inc.

Job Number: 680-63778-1
SDG Number: KPS062

Login Number: 63827
Creator: Conner, Keaton
List Number: 1

List Source: TestAmerica Savannah

Question	T / F/ NA	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	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.4 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.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	False	-4 AND -5 toc AND -5 Metals pH>2
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	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

MJW CORPORATION
Radiation Consulting Professionals

March 9, 2011

Mr. Duane T. Kreuger
Geotechnology, Inc.
11816 Lackland Road Suite 150
St. Louis, MO63146

Dear Mr. Kreuger:

The data reported by Test America Laboratories under SDG's KPS061 and KPS062 have been reviewed for quality assurance validation. Data was reported for Volatiles, Volatiles (dissolved gases), ICP Metals (total and dissolved), Chloride, Nitrate, Sulfate, Organic Carbon (total and dissolved), Alkalinity, and Carbon Dioxide for 28 samples as requested by Geotechnology, Inc. The 28 samples listed below were validated by MJW. The samples in **bold type** have been validated for level IV validation. The data in this report has either been approved for use, approved with qualification, or rejected.

- **CPA-MW-5D-1210 (Lab ID: 680-63678-1)**
- CPA-MW-5D-1210-MS (Lab ID: 680-63678-1MS)
- CPA-MW-5D-1210-MSD (Lab ID: 680-63678-1 MSD)
- **CPA-MW-5D-F(0.2)-1210 (Lab ID: 680-63678-2)**
- **BSA-MW-5D-1210 (Lab ID: 680-63678-3)**
- **BSA-MW-5D-F(0.2)-1210 (Lab ID: 680-63678-4)**
- 4Q10LTM Trip Blank #1 (Lab ID: 680-63678-5TB)
- **BSA-MW-4D-1210 (Lab ID: 680-63736-1)**
- **BSA-MW-4D-F(0.2)-1210 (Lab ID: 680-63736-2)**
- **CPA-MW-4D-1210 (Lab ID: 680-63736-3)**
- **CPA-MW-4D-F(0.2)-1210 (Lab ID: 680-63736-4)**
- BSA-MW-3D-1210 (Lab ID: 680-63736-5)
- BSA-MW-3D-F(0.2)-1210 (Lab ID: 680-63736-6)
- BSA-MW-3D-1210-EB (Lab ID: 680-63736-7EB)
- 4Q10LTM Trip Blank #2 (Lab ID: 680-63736-8TB)
- CPA-MW-3D-1210 (Lab ID: 680-63778-1)
- CPA-MW-3D-F(0.2)-1210 (Lab ID: 680-63778-2)
- BSA-MW-2D-1210 (Lab ID: 680-63778-3)
- BSA-MW-2D-F(0.2)-1210 (Lab ID: 680-63778-4)
- BSA-MW-1S-1210 (Lab ID: 680-63778-5)
- BSA-MW-1S-F(0.2)-1210 (Lab ID: 680-63778-6)
- Trip Blank #3 4Q10LTM (Lab ID: 680-63778-7TB)
- CPA-MW-2D-1210 (Lab ID: 680-63827-1)
- CPA-MW-2D-F(0.2)-1210 (Lab ID: 680-63827-2)
- CPA-MW-2D-1210-AD (Lab ID: 680-63827-3FD)
- CPA-MW-1D-1210 (Lab ID: 680-63827-4)
- CPA-MW-1D-F(0.2)-1210 (Lab ID: 680-63827-5)
- 4Q10LTM Trip Blank #3 (Lab ID: 680-63827-6TB)

If you have any questions concerning this data validation report, please contact me at 585-344-7197.

Very truly yours,

MJW Corporation Inc.

Annette Guilds, CES
Senior Scientist

Approved by:

David A. Dooley, Ph.D., CHP
President, MJW Corporation Inc.

University Park, 1900 Sweet Home Road
Amherst, NY 14228-3359
Voice: (716) 631.8291 Fax: (716) 631.5631 Toll Free: 1 (888) MJW.CORP www.mjwcorp.com

QUALITY ASSURANCE REPORT

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

Long-Term Monitoring Program
4th Quarter 2010 Data Validation Report
SDG: KPS061 & KPS062

Prepared for

GEOTECHNOLOGY, INC.
11816 Lackland Road, Suite 150
St. Louis, MO 63146

March 2011

MJW

MJW Corporation, Inc.
1900 Sweet Home Road
Amherst, NY 14228
(716)-631-8291
Project # 2010-1918

DATA ASSESSMENT NARRATIVE
(INORGANICS)

INORGANIC DATA ASSESSMENT NARRATIVE

Site: Solutia W.G. Krummich Plant (LTM Site) Matrix: Soil _____

SDG# KPS061 & KPS062 Lab Test America Water X

Contractor Geotechnology Inc. Reviewer Annette Guilds-MJW Other _____

A.2.1 Validation Flags- The following flags have been applied in red by the data validator and must be considered by the data user.

J- This flag indicates the result qualified as **estimated**

Red- Line- A red line drawn through a sample result indicates **unusable** value. The red lined data are known to contain significant errors based on documented information and must not be used by the data user.

Fully Usable Data- The results that do not carry "J" or "red-line" are fully **usable**.

Contractual Qualifiers- The legend of contractual qualifiers applied by the lab on Form I's is found on page B-20 of SOW ILM01.0.

A.2.2 The data assessment is given below.

Data is usable except for the following samples:

Sample BSA-MW-4D-1210 that has been rejected for Total Organic Carbon (TOC) and Dissolved Organic Carbon (DOC). The DOC result is greater than the corresponding TOC result by at least 50% and that is not possible. The validator cannot determine whether the error was in the field filtering or in the laboratory analyses.
Samples BSA-MW-5D-1210 and CPA-MW-4D-1210 have been estimated "J" for TOC and DOC because the dissolved result is greater than the total result by at least 10%.
Sample CPA-MW-5D-1210 has been estimated "J" for Iron and Manganese because the dissolved result is greater than the total result by at least 10%.

The following bulleted items summarize additional comments where data has not been qualified but it is recommended that additional communication with the laboratory be conducted to further assess the data.

•

A.2.3 Contract-Problem/Non-Compliance

•

Data Reviewer: Annette Guilds Date: 3/7/11
Signature

MJW Approval: David A. Cooley Date: 3/7/11
Signature

DATA ASSESSMENT NARRATIVE
(ORGANICS)

ORGANIC DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE NO.: _____ SDG NO.: KPS061 & KPS062 LABORATORY: Test America
SITE: Solutia W.G. Krummrich Plant (LTM Site)

DATA ASSESSMENT

All data were found to be valid and acceptable except those analytes that have been rejected, "R" (unusable). Due to various QC problems some analytes may have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detect), or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

All data is fully acceptable and usable.

Reviewer's Signature: Annette Guida Date: 3/07/2011

MJW Approval: David A Dooley Date: 3/07/2011

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

No action necessary.

2. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

No action necessary.

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

No action necessary.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination, which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:

No action necessary.

B) Field or rinse blank contamination:

No action necessary.

C) Trip blank contamination:

No action necessary.

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".

No action necessary.

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be ≥ 0.05 in both initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

No action necessary.

7. CALIBRATION:

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

For the PEST/PCB fraction, if %RSD exceeds 20% for all analytes except for the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

No action necessary.

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction.

No action necessary.

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

No action necessary.

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10ng/ml in the final sample extract.

N/A

10. CONTRACT PROBLEMS NON-COMPLIANCE:

11. FIELD DOCUMENTATION: **A field duplicate was analyzed for sample CPA-MW-02D-1210 and all %RPD's were acceptable.**

12. OTHER PROBLEMS:

None

13. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified to be used.

None

Summary Data Qualifiers

Summary of Sample Data Qualifiers

SDG # KPS061, KPS062 Site Name Solutia W.G. Krummrich Plant (LTM Site)

Client ID	Lab ID	Matrix	Fe	Mn	TOC	DOC
CPA-MW-5D-1210	680-63678-1	Water	J	J		
CPA-MW-5D-F(0.2)-1210	680-63678-2	Water	J	J		
BSA-MW-5D-1210	680-63678-3	Water			J	
BSA-MW-5D-F(0.2)-1210	680-63678-4	Water				J
BSA-MW-4D-1210	680-63736-1	Water			R	
BSA-MW-4D-F(0.2)-1210	680-63736-2	Water				R
CPA-MW-4D-1210	680-63736-3	Water			J	
CPA-MW-4D-F(0.2)-1210	680-63736-4	Water				J
BSA-MW-3D-1210	680-63736-5	Water				
BSA-MW-3D-F(0.2)-1210	680-63736-6	Water				
CPA-MW-3D-1210	680-63778-1	Water				
CPA-MW-3D-F(0.2)-1210	680-63778-2	Water				
BSA-MW-2D-1210	680-63778-3	Water				
BSA-MW-2D-F(0.2)-1210	680-63778-4	Water				
BSA-MW-1S-1210	680-63778-5	Water				
BSA-MW-1S- F(0.2)-1210	680-63778-6	Water				
CPA-MW-2D-1210	680-63827-1	Water				
CPA-MW-2D-F(0.2)-1210	680-63827-2	Water				
CPA-MW-2D-1210-AD	680-63827-3 FD	Water				
CPA-MW-1D-1210	680-63827-4	Water				
CPA-MW-1D-F(0.2)-1210	680-63827-5	Water				

Data Outlier Forms

Total and Dissolved Analyses

Sample	Analyte	Total Amt (mg/L)	Dissolved Amt (mg/L)	Qualifier
CPA-MW-5D-1210	Iron	74.00	86.00	J
CPA-MW-5D-1210	Manganese	2.20	2.90	J
BSA-MW-5D-1210	Iron	14.00	14.00	none
BSA-MW-5D-1210	Manganese	0.48	0.52	none
BSA-MW4D-1210	Iron	9.90	9.60	none
BSA-MW4D-1210	Manganese	0.73	0.71	none
CPA-MW-4D-1210	Iron	12.00	11.00	none
CPA-MW-4D-1210	Manganese	0.28	0.28	none
BSA-MW-3D-1210	Iron	12.00	11.00	none
BSA-MW-3D-1210	Manganese	0.57	0.54	none
CPA-MW-3D-1210	Iron	14.00	13.00	none
CPA-MW-3D-1210	Manganese	0.70	0.66	none
BSA-MW-2D-1210	Iron	2.90	2.40	none
BSA-MW-2D-1210	Manganese	0.05	0.05	none
BSA-MW-1S-1210	Iron	4.20	3.50	none
BSA-MW-1S-1210	Manganese	0.46	0.47	none
CPA-MW-2D-1210	Iron	6.80	5.90	none
CPA-MW-2D-1210	Manganese	0.46	0.46	none
CPA-MW-1D-1210	Iron	2.00	1.00	none
CPA-MW-1D-1210	Manganese	0.15	0.13	none
CPA-MW-5D-1210	Organic Carbon	3.80	3.90	none
BSA-MW-5D-1210	Organic Carbon	5.40	5.90	J
BSA-MW-4D-1210	Organic Carbon	4.80	7.50	R
CPA-MW-4D-1210	Organic Carbon	10.00	11.00	J
BSA-MW-3D-1210	Organic Carbon	4.00	3.90	none
CPA-MW-3D-1210	Organic Carbon	11.00	11.00	none
BSA-MW-2D-1210	Organic Carbon	6.20	6.20	none
BSA-MW-1S-1210	Organic Carbon	6.10	6.60	none
CPA-MW-2D-1210	Organic Carbon	11.00	11.00	none
CPA-MW-1D-1210	Organic Carbon	16.00	11.00	none

Data Packages: KPS061, KPS062

Date: 3/07/2011

CERTIFICATES OF ANALYSIS (COA's)

with Data Validation Qualifiers Added

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: CPAMW-05D-1210 Lab Sample ID: 680-63678-1

Lab Name: TestAmerica Savannah Job No.: 680-63678-1

SDG ID.: KPS061

Matrix: Water Date Sampled: 12/02/2010 11:45

Reporting Basis: WET Date Received: 12/03/2010 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-89-6	Iron	74	0.050	0.024	mg/L		J	1	6010B
7439-96-5	Manganese	2.2	0.010	0.0030	mg/L		J	1	6010B

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - DISSOLVED

Client Sample ID: CPAMW05D-F(0.2)-1210 Lab Sample ID: 680-63678-2

Lab Name: TestAmerica Savannah Job No.: 680-63678-1

SDG ID.: KPS061

Matrix: Water Date Sampled: 12/02/2010 11:45

Reporting Basis: WET Date Received: 12/03/2010 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-89-6	Iron, Dissolved	86	0.050	0.024	mg/L		J	1	6010B
7439-96-5	Manganese, Dissolved	2.9	0.010	0.0030	mg/L		J	1	6010B

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: BSA-MW-5D-1210 Lab Sample ID: 680-63678-3

Lab Name: TestAmerica Savannah Job No.: 680-63678-1

SDG ID.: KPS061

Matrix: Water Date Sampled: 12/02/2010 15:20

Reporting Basis: WET Date Received: 12/03/2010 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
16887-00-6	Chloride	270	5.0	0.90	mg/L			5	325.2
14797-55-8	Nitrate as N	0.050	0.050	0.010	mg/L	U		1	353.2
14808-79-8	Sulfate	21	5.0	2.5	mg/L			1	375.4
7440-44-0	Total Organic Carbon	5.4	1.0	0.50	mg/L		J	1	415.1

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY - DISSOLVED

Client Sample ID: BSA-MW-5D-F(0.2)-1210 Lab Sample ID: 680-63678-4

Lab Name: TestAmerica Savannah Job No.: 680-63678-1

SDG ID.: KPS061

Matrix: Water Date Sampled: 12/02/2010 15:20

Reporting Basis: WET Date Received: 12/03/2010 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-44-0	Dissolved Organic Carbon	5.9	1.0	0.50	mg/L		J	1	415.1

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: BSA-MW-04D-1210 Lab Sample ID: 680-63736-1

Lab Name: TestAmerica Savannah Job No.: 680-63678-1

SDG ID.: KPS061

Matrix: Water Date Sampled: 12/03/2010 10:20

Reporting Basis: WET Date Received: 12/04/2010 10:23

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
16887-00-6	Chloride	160	2.0	0.36	mg/L			2	325.2
14797-55-8	Nitrate as N	0.050	0.050	0.010	mg/L	U		1	353.2
14808-79-8	Sulfate	29	5.0	2.5	mg/L			1	375.4
7440-44-0	Total Organic Carbon	4.8	1.0	0.50	mg/L		R	1	415.1

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY - DISSOLVED

Client Sample ID: BSA-MW-04D-F(0.2)-1210 Lab Sample ID: 680-63736-2

Lab Name: TestAmerica Savannah Job No.: 680-63678-1

SDG ID.: KPS061

Matrix: Water Date Sampled: 12/03/2010 10:20

Reporting Basis: WET Date Received: 12/04/2010 10:23

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-44-0	Dissolved Organic Carbon	7.5	1.0	0.50	mg/L		R	1	415.1

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: CPA-MW-04D-1210 Lab Sample ID: 680-63736-3

Lab Name: TestAmerica Savannah Job No.: 680-63678-1

SDG ID.: KPS061

Matrix: Water Date Sampled: 12/03/2010 13:00

Reporting Basis: WET Date Received: 12/04/2010 10:23

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
16887-00-6	Chloride	270	5.0	0.90	mg/L			5	325.2
14797-55-8	Nitrate as N	0.050	0.050	0.010	mg/L	U		1	353.2
14808-79-8	Sulfate	5.0	5.0	2.5	mg/L	U		1	375.4
7440-44-0	Total Organic Carbon	10	1.0	0.50	mg/L		J	1	415.1

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY - DISSOLVED

Client Sample ID: CPA-MW-04D-F(0.2)-1210 Lab Sample ID: 680-63736-4

Lab Name: TestAmerica Savannah Job No.: 680-63678-1

SDG ID.: KPS061

Matrix: Water Date Sampled: 12/03/2010 13:00

Reporting Basis: WET Date Received: 12/04/2010 10:23

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-44-0	Dissolved Organic Carbon	11	1.0	0.50	mg/L		J	1	415.1

APPENDIX E

MICROBIAL INSIGHTS DATA PACKAGE

2340 Stock Creek Blvd.
Rockford TN 37853-3044
Phone: (865) 573-8188
Fax: (865) 573-8133
Email: info@microbe.com

Client: Duane Kreuger
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146

Phone: 314.997.7740

Fax: 314.997.2067

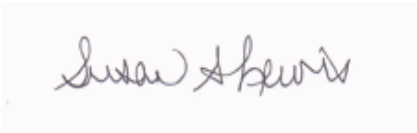
Identifier: 059HK **Date Rec:** 11/24/2010 **Report Date:** 03/04/2011

Client Project #: J017210.06 **Client Project Name:** Solutia

Purchase Order #: 34133

Analysis Requested: PLFA, Stable Isotope Probing

Reviewed By:



MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel. (865) 573-8188 Fax. (865) 573-8133

PLFA

Client: **Geotechnology, Inc.**
Project: Solutia

MI Project Number: **059HK**
Date Received: 11/24/2010

Sample Information

Sample Name:	**BSA-MW1S-1110**	**BSA-MW2D-1110**	**BSA-MW3D-1110**	**BSA-MW4D-1110**	**BSA-MW5D-1110**
Sample Date:	11/23/2010	11/23/2010	11/23/2010	11/23/2010	11/23/2010
Sample Matrix:	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap
Analyst:	BJ	BJ	BJ	BJ	BJ

Biomass Concentrations

Total Biomass (cells/bead)	**4.43E+05**	**2.11E+05**	**1.34E+05**	**1.56E+05**	**1.12E+05**

Community Structure (% total PLFA)

Firmicutes (TerBrSats)	**2.13**	**5.35**	**5.40**	**2.46**	**3.73**
Proteobacteria (Monos)	**43.30**	**67.55**	**41.35**	**52.64**	**45.14**
Anaerobic metal reducers (BrMonos)	**0.00**	**0.00**	**0.00**	**0.00**	**2.59**
SRB/Actinomycetes (MidBrSats)	**3.59**	**5.41**	**18.89**	**0.00**	**11.64**
General (Nsats)	**49.53**	**21.12**	**33.20**	**36.65**	**34.25**
Eukaryotes (polyenoics)	**1.43**	**0.58**	**1.16**	**8.26**	**2.63**

Physiological Status (Proteobacteria only)

Slowed Growth	**0.00**	**0.12**	**0.17**	**0.11**	**0.15**
Decreased Permeability	**0.86**	**0.21**	**0.24**	**0.42**	**0.13**

Legend:
NA = Not Analyzed NS = Not Sampled

MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel. (865) 573-8188 Fax. (865) 573-8133

PLFA

Client: **Geotechnology, Inc.**
Project: Solutia

MI Project Number: **059HK**
Date Received: 11/24/2010

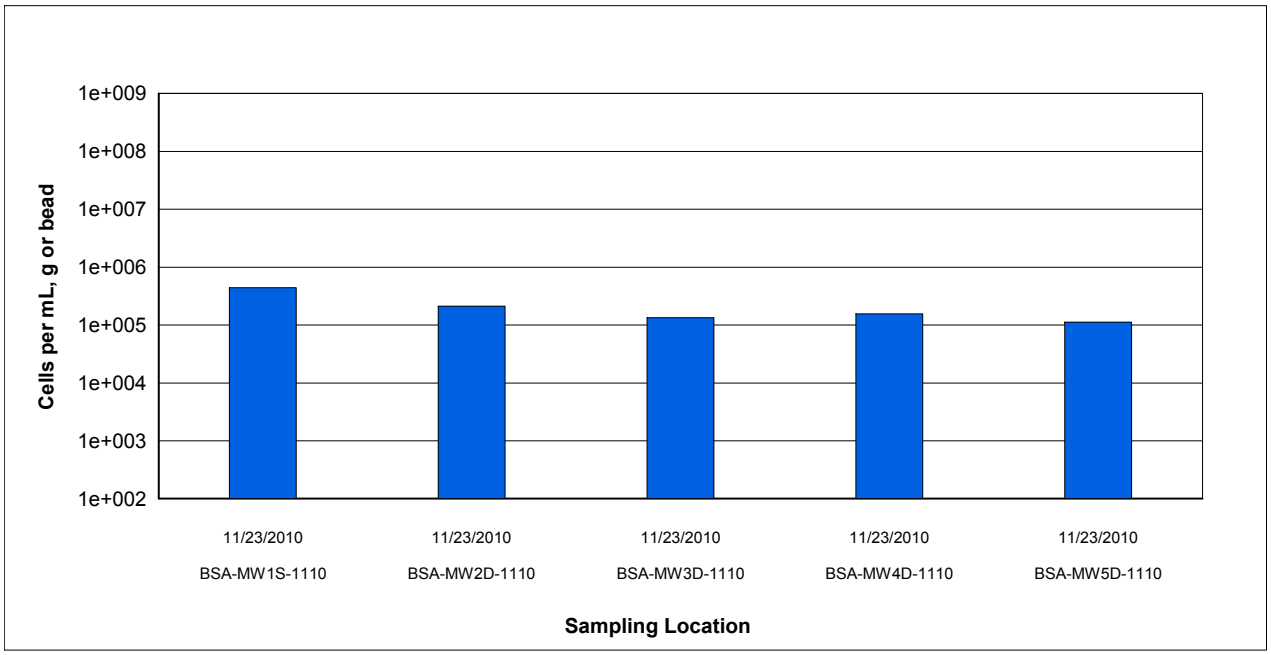


Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

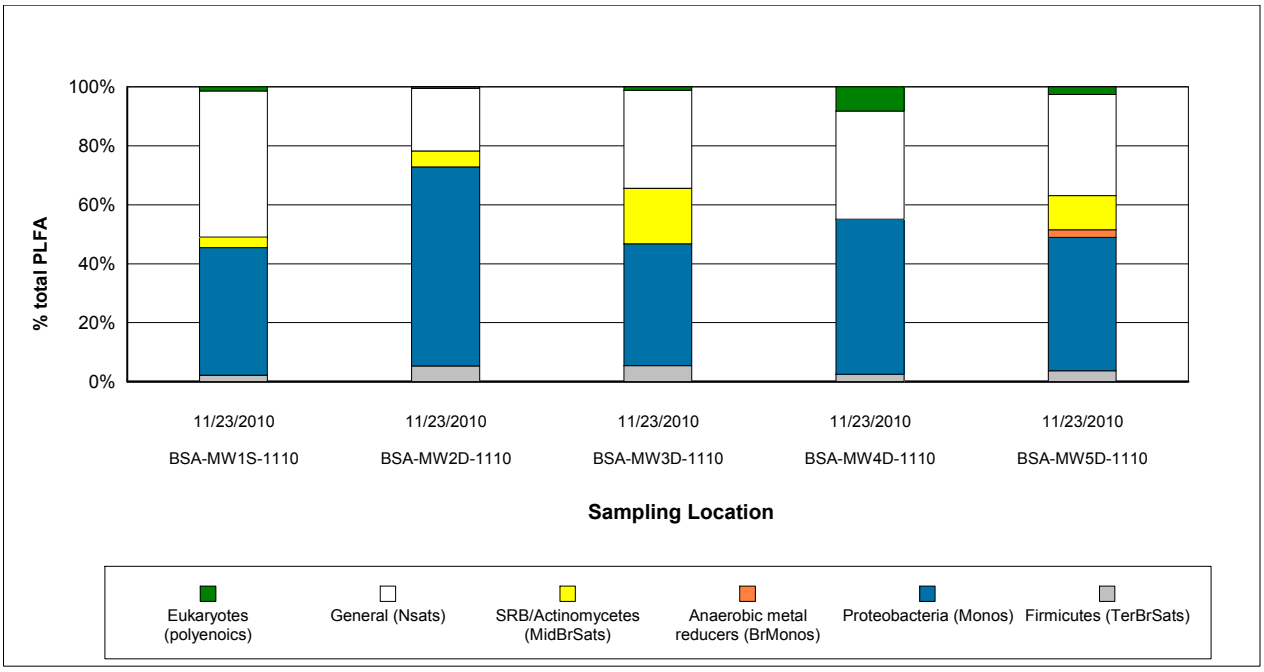


Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel. (865) 573-8188 Fax. (865) 573-8133

PLFA

Client: **Geotechnology, Inc.**
Project: Solutia

MI Project Number: **059HK**
Date Received: 11/24/2010

Sample Information

Sample Name:	**CPA-MW1D-1110**	**CPA-MW2D-1110**	**CPA-MW3D-1110**	**CPA-MW4D-1110**	**CPA-MW5D-1110**
Sample Date:	11/23/2010	11/23/2010	11/23/2010	11/23/2010	11/23/2010
Sample Matrix:	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap
Analyst:	BJ	BJ	BJ	BJ	BJ
Biomass Concentrations					
Total Biomass (cells/bead)	**5.60E+04**	**4.64E+05**	**1.82E+05**	**4.22E+05**	**6.49E+05**
Community Structure (% total PLFA)					
Firmicutes (TerBrSats)	**5.13**	**3.37**	**4.02**	**5.53**	**2.41**
Proteobacteria (Monos)	**25.61**	**39.88**	**50.74**	**52.80**	**62.18**
Anaerobic metal reducers (BrMonos)	**0.00**	**0.00**	**0.00**	**0.42**	**0.37**
SRB/Actinomycetes (MidBrSats)	**24.25**	**0.00**	**7.84**	**0.00**	**0.13**
General (Nsats)	**38.53**	**38.21**	**36.22**	**27.50**	**25.61**
Eukaryotes (polyenoics)	**6.48**	**18.54**	**1.20**	**13.73**	**9.30**
Physiological Status (Proteobacteria only)					
Slowed Growth	**0.00**	**0.08**	**0.17**	**0.06**	**1.75**
Decreased Permeability	**0.00**	**0.61**	**0.32**	**0.23**	**0.03**

Legend:
NA = Not Analyzed NS = Not Sampled

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PLFA

Client: **Geotechnology, Inc.**
Project: Solutia

MI Project Number: **059HK**
Date Received: 11/24/2010

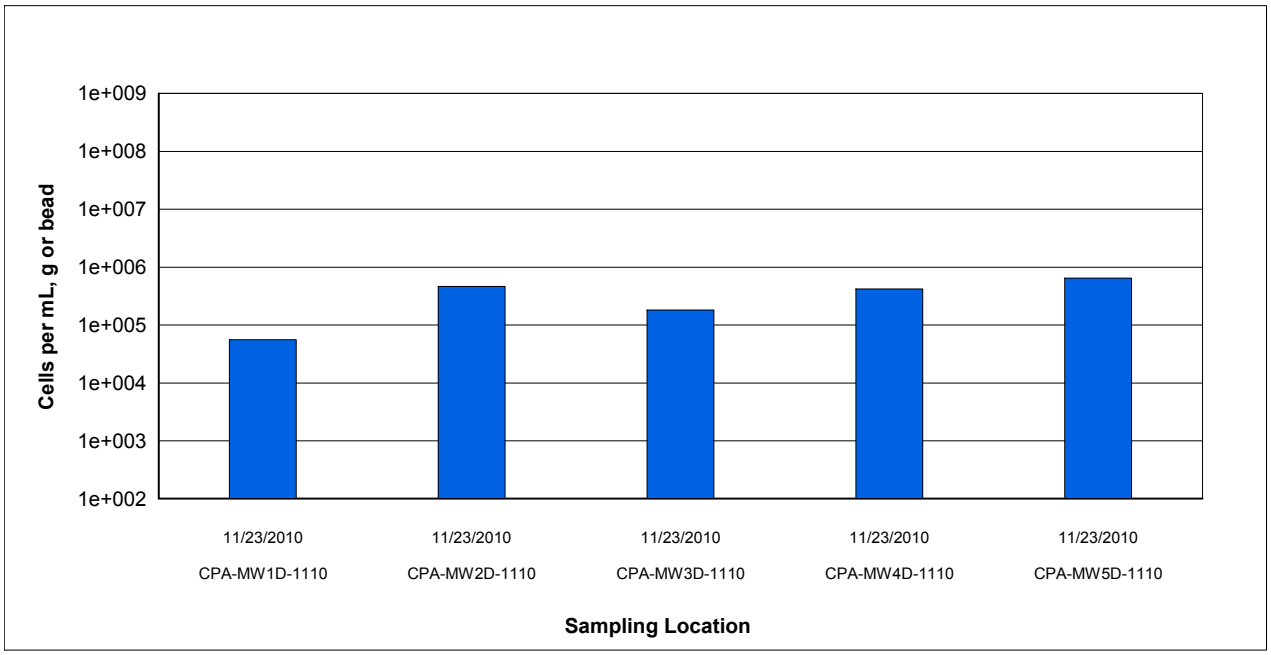

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

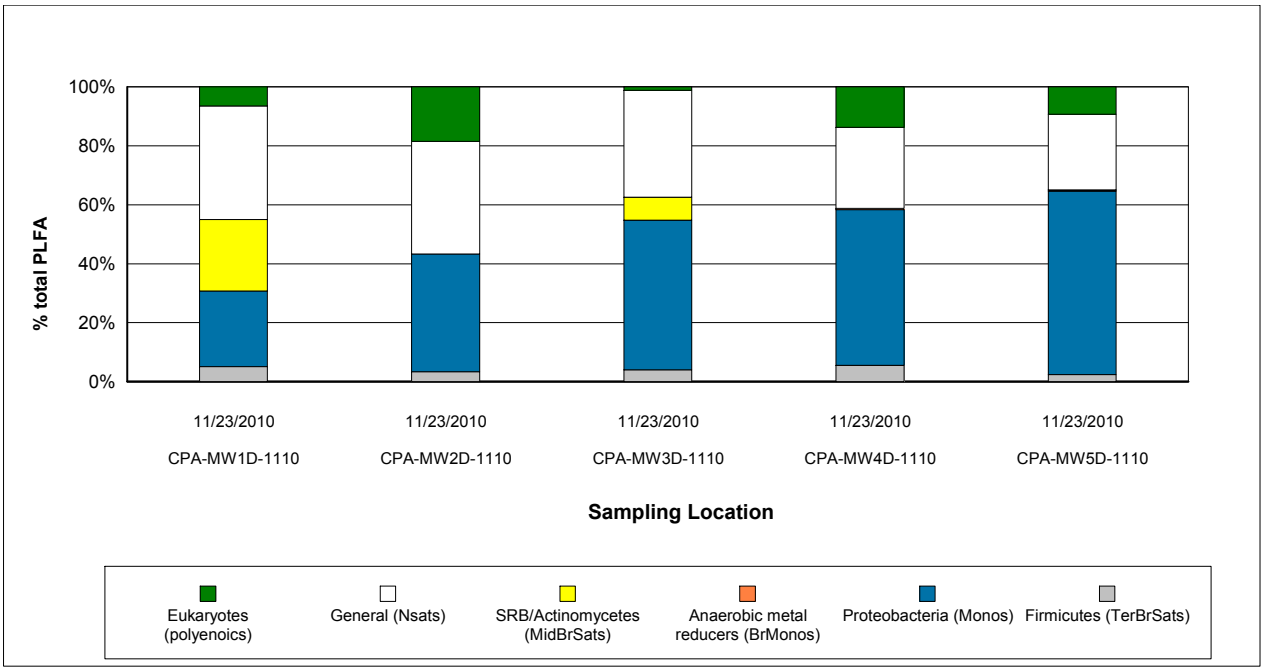

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

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PLFA

Client: **Geotechnology, Inc.**
Project: Solutia

MI Project Number: **059HK**
Date Received: 11/24/2010

Sample Information

Sample Name:	**BSA-MW2D-1110**	**CPA-MW3D-1110**
Sample Date:	11/23/2010	11/23/2010
Sample Matrix:	Adv. Bio-Trap	Adv. Bio-Trap
Analyst:	BJ	BJ

Biomass Concentrations

Total Biomass (cells/bead)	**1.85E+05**	**3.63E+05**

Community Structure (% total PLFA)

Firmicutes (TerBrSats)	**4.94**	**2.89**
Proteobacteria (Monos)	**62.66**	**46.43**
Anaerobic metal reducers (BrMonos)	**0.00**	**0.00**
SRB/Actinomycetes (MidBrSats)	**5.42**	**21.29**
General (Nsats)	**18.64**	**19.85**
Eukaryotes (polyenoics)	**8.36**	**9.53**

Physiological Status (Proteobacteria only)

Slowed Growth	**0.24**	**0.52**
Decreased Permeability	**0.27**	**0.67**

Legend:
NA = Not Analyzed NS = Not Sampled

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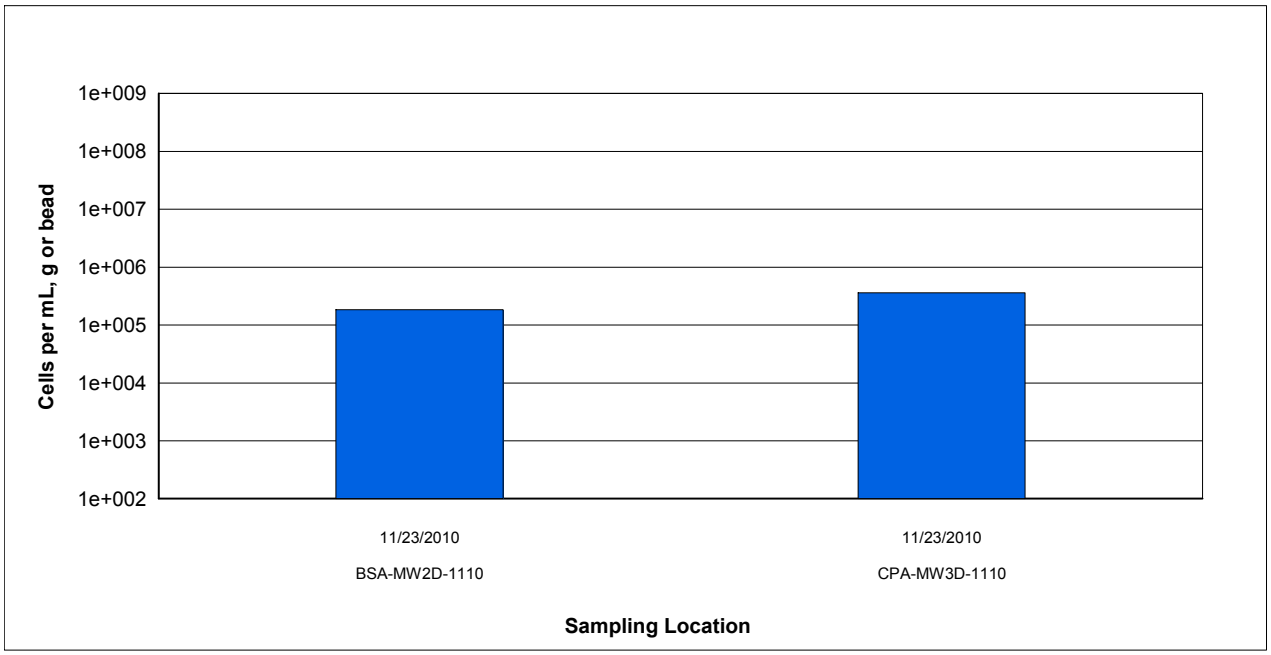

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

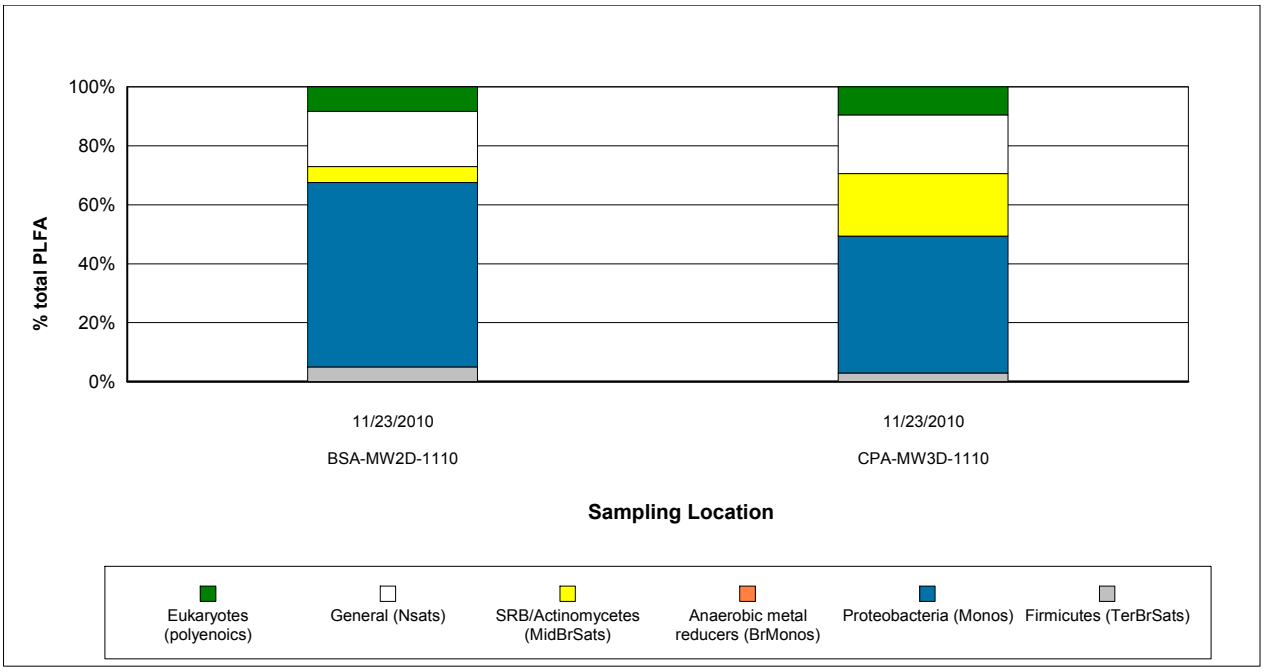

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

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Phospholipid Fatty Acid Analysis

Interpretation Guidelines

Phospholipids fatty acids (PLFA) are a main component of the membrane (essentially the "skin") of microbes and provide a powerful tool for assessing microbial responses to changes in their environment. This type of analysis provides direct information for assessing and monitoring sites where bioremediation processes, including natural attenuation, are of interest. Analysis of the types and amount of PLFA provides a broad based understanding of the entire microbial community with information obtained in three key areas viable biomass, community structure and metabolic activity.

What is the detection limit for PLFA?

Our limit of detection for PLFA analysis is ~150 picomoles of total PLFA and our limit of quantification is ~500 picomoles of total PLFA. Samples which contain PLFA amounts at or below 150 pmol cannot be used to determine biomass, likewise samples with PLFA content below ~500 pmol are generally considered to contain too few fatty acids to discuss community composition.

How should I interpret the PLFA results?

Interpreting the results obtained from PLFA analysis can be somewhat difficult, so this document was designed to provide a technical guideline. For convenience, this guideline has been divided into the three key areas.

Viable Biomass

PLFA analysis is one of the most reliable and accurate methods available for the determination of viable microbial biomass. Phospholipids break down rapidly upon cell death (21, 23), so biomass calculations based on PLFA content do not contain 'fossil' lipids of dead cells.

How is biomass measured?

Viable biomass is determined from the total amount of PLFA detected in a given sample. Since, phospholipids are an essential part of intact cell membranes they provide an accurate measure of viable cells.

How is biomass calculated?

Biomass levels are reported as cells per gram, mL or bead, and are calculated using a conversion factor of 20,000 cells/pmole of PLFA. This conversation factor is based upon cells grown in laboratory media, and varies somewhat with the type of organism and environmental conditions.

What does the concentration of biomass mean?

The overall abundance of microbes within a given sample is often used as an indicator of the potential for bioremediation to occur, but understanding the levels of biomass within each sample can be cumbersome. The following are benchmarks that can be used to understand whether the biomass levels are low, moderate or high.

Low	Moderate	High
10^3 to 10^4 cells	10^5 to 10^6 cells	10^7 to 10^8 cells

How do I know if a change in biomass is significant?

One of the primary functions of using PLFA analysis at contaminated sites is to evaluate how a community responds following a given treatment, but how does one know if the changes observed between two events are significant? As a general rule, biomass levels which increase or decrease by at least an order of magnitude are considered to be significant. However, changes in biomass levels of less than an order of magnitude may still show a trend. It is important to remember that many factors can affect microbial growth, so factors other than the treatment could be influencing the changes observed between sampling events. Some of the factors to consider are: temperature, moisture, pH, etc. The following illustration depicts three types of changes that occurred over time and the conclusions that could be drawn.

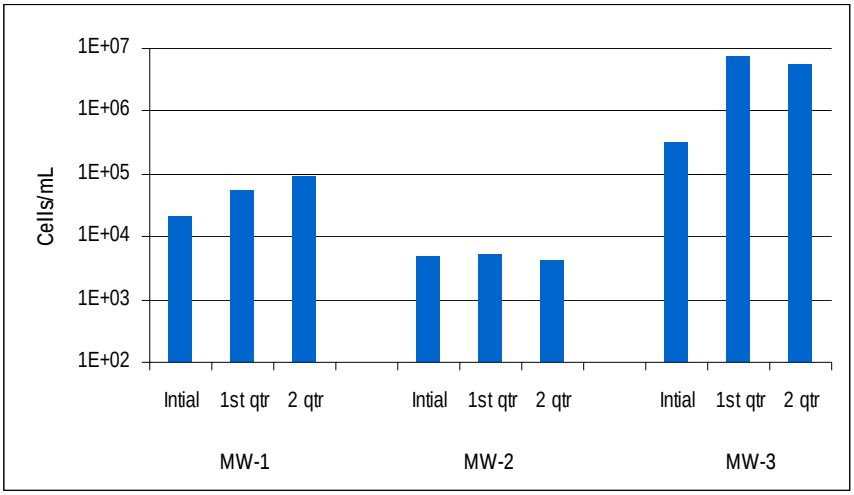

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

Conclusions from graph above:

- MW-1 showed a trend of biomass levels increasing steadily over time, although cell concentrations were ~10^4 cells/mL at each sampling event.
- MW-2 showed no notable trends or significant changes in biomass concentrations.
- MW-3 showed a significant increase in biomass levels between the initial and 1st quarter sampling events (from ~10^5 to ~10^6 cells/mL).

Community Structure:

The PLFA in a sample can be separated into particular types, and the resulting PLFA "profile" reflects the proportions of the categories of organisms present in the sample. Because groups of bacteria differ in their metabolic capabilities, determining which bacterial groups are present and their relative distributions within the community can provide information on what metabolic processes are occurring at that location. This in turn can also provide information on the subsurface conditions (i.e oxidation/reduction status, etc.). Table 1 describes the six major structural groups used and their potential relevance to site specific projects.

Table 1. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in eukaryotes such as fungi, protozoa, algae, higher plants, and animals.	Eukaryotic scavengers will often rise up and prey on contaminant utilizing bacteria

Following are answers to some of the common questions about community composition and some detailed descriptions of some typical shifts which can be observed between sampling events.

How is the community structure data presented?

Community structure data is presented as percentage (%) of the total amount of PLFA. In order to relate the complex mixture of PLFA to the organisms present, the ratio of a specific PLFA group is determined (detailed in Table 1 above), and this corresponds to the proportion of the related bacterial classification within the overall community structure. Because normal saturated PLFA are found in both prokaryotes (bacteria) and eukaryotes (fungi, protozoa, diatoms etc), their distribution provides little insight into the types of microbes that are present at a sampling location. However, high proportions of normal saturates are often associated with less diverse microbial populations.

How can community structure data be used to manage my site?

It is important to understand that microbial communities are often a mixture of different types of bacteria (e.g. aerobes, sulfate reducers, methanogens, etc) with the abundance of each group behaving like a seesaw, i.e. as the population of one group increases, another is likely decreasing, mostly due to competition for available resources. The PLFA profile of a sample provides a "fingerprint" of the microbial community, showing relative proportions of the specific bacterial types at the time of sampling. This is a great tool for detecting shifts within the community over time and also to evaluate similarities/differences between sampling locations. It is important to note that PLFA analysis of community structure is analyzing the microbes directly, not just secondary breakdown products. So this provides evidence of how the entire microbial community is responding to the treatment.

How do I recognize community shifts and what they mean?

Shifts in the community structure are indications of changing conditions and their effect on the microbial community, and, by extension on the metabolic processes occurring at the sampling location. Some of the more commonly seen shifts within the community are illustrated and discussed below:

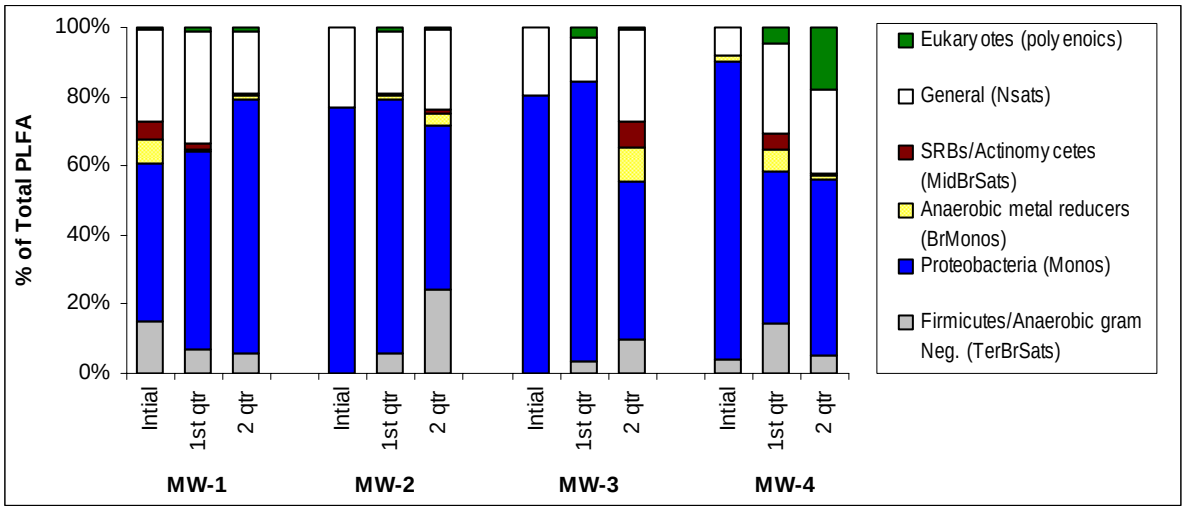

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See Table 1 for detailed descriptions of structural groups.

- **Increased Proteobacteria**

Proportions of Proteobacteria are of interest because it is one of the largest groups of bacteria and represents a wide variety of both aerobe and anaerobes. The majority of hydrocarbons (including benzene and naphthalene) are metabolized by some member of Proteobacteria, mainly due to their ability to grow opportunistically, quickly taking advantage of available food (i.e. hydrocarbons), and adapting quickly to changes in the environment. The detection of increased proportions of Proteobacteria coupled with increased biomass suggests that the Proteobacteria are consuming something. In situations where it is important to determine the extent to which the Proteobacteria are utilizing anaerobic or aerobic pathways, it is possible to measure relative proportions of specific biomarkers that are associated with anaerobic or aerobic pathways thus separating the Proteobacteria into different groups, based on pathways used. Sample MW-1 from Figure 2 depicts a shift in community structure where the proportion of Proteobacteria has increased over time.

- **Increased Firmicutes/Anaerobic Gram negative bacteria**

Increased proportions of Firmicutes/Anaerobic Gram negative bacteria generally indicate that conditions are becoming more reductive (i.e. more anaerobic). Proportions of Firmicutes are of particular interest in sites contaminated with chlorinated hydrocarbons because Firmicutes include anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination.

Enhanced bioremediation of chlorinated solvents often employs the injection of fermentable substrates which, when utilized by fermenting bacteria, results in the release of H_2. Engineered shifts in the microbial community can be shown by observing increased proportions Firmicutes following an injection of fermentable substrate. Through long-term monitoring of the community structure it is possible to know when re-injection may be necessary or desirable. Sample MW-2 from Figure 2 depicts a shift in community structure where the proportion of Firmicutes has increased over time.

- **Increased anaerobic metal reducing bacteria (BrMonos) and SRB/Actinomycetes (MidBrSats)**

An increase in the proportions of metal and sulfate reducing bacterial groups, especially when combined with shifts in the other bacterial groups, can provide information helpful to monitoring bioremediation. Generally, an increase in metal and sulfate reducers points to more reduced (anaerobic) conditions at the sampled location. This is especially true if there is an increase in Firmicutes at the same time. Large increases in either metal and sulfate reducers, particularly if accompanied by a decrease in Firmicutes, may suggest that conditions are becoming increasingly reduced. In this situation the metal and sulfate reducers may be out-competing dechlorinators for available H_2, thereby limiting the potential for reductive dechlorination at that location. Sample MW-3 from Figure 2 depicts a shift in community structure where the proportion of metal reducing bacteria has increased over time.

- **Increased Eukaryotes**

Eukaryotes include organisms such as fungi, protozoa, and diatoms. At a contaminated location, an increase in eukaryotes, particularly if seen with a decrease in the contaminant utilizing bacteria, suggests that eukaryotic scavengers are preying upon what had been an abundance of bacteria which were consuming the contaminant. Sample MW-4 from Figure 2 depicts a shift in community structure where the proportion of eukaryotes has increased over time.

Physiological status of Proteobacteria

The membrane of a microbe adapts to the changing conditions of its environment, and these changes are reflected in the PLFA. Toxic compounds or environmental conditions may disrupt the membrane and some bacteria respond by making *trans* fatty acids instead of the usual *cis* fatty acids (7) in order to strengthen the cell membrane, making it less permeable. Many Proteobacteria respond to lack of available substrate or to highly toxic conditions by making cyclopropyl (7) or mid-chain branched fatty acids (20) which point to less energy expenditure and a slowed growth rate. The physiological status ratios for Decreased Permeability (trans/cis ratio) and for Slowed Growth (cy/cis ratio) are based on dividing the amount of the fatty acid induced by environmental conditions by the amount of its biosynthetic precursor.

What does slowed growth or decreased permeability mean?

Ratios for slowed growth and for decreased permeability of the cell membrane provide information on the “health” of the Gram negative community, that is, how this population is responding to the conditions present in the environment. It should be noted that one must be cautious when interpreting these measures from only one sampling event. The most effective way to use the physiological status indicators is in long term monitoring and comparing how these ratios increase/decrease over time.

A marked increase in either of these ratios suggests a change in environment which is less favorable to the Gram negative Proteobacteria population. The ratio for slowed growth is a relative measure, and does not directly correspond to log or stationary phases of growth, but is useful as a comparison of growth rates among sampling locations and also over time. An increase in this ratio (i.e. slower growth rate) suggests a change in conditions which is not as supportive of rapid, “healthy” growth of the Gram negative population, often due to reduced available substrate (food). A larger ratio for decreased permeability suggests that the environment has become more toxic to the Gram negative population, requiring energy expenditure to produce *trans* fatty acids in order to make the membrane more rigid.

References

1. Amann, R. I., W. Ludwig, and K.-H. Schleifer. 1995. Phylogenetic identification and in situ detection of individual microbial cells without cultivation. Microbiological Reviews 59:143-169.
2. Cottrell, MT and David L. Kirchman. Appl Environ Microbiol. 2000 April; 66 (4): 16921697.
3. Gillis, M., V. Tran Van, R. Bardin, M. Goor, P. Hebbar, A. Willems, P. Segers, K. Kerstens, T. Heulin, and M. P. Fernadez. 1995. Polyphasic taxonomy in the genus Burkholderia leading to an amended description of the genus and proposition of Burkholderia vietnamiensis sp. nov. for N2-fixing isolates from rice in Vietnam. Int. J. Syst. Bacteriol. 45:274-289.
4. Dowling, N. J. E., F. Widdel, and D. C. White. 1986. Phospholipid ester-linked fatty acid biomarkers of acetate-oxidizing sulfate reducers and other sulfide forming bacteria. Journal of General Microbiology 132:1815-1825.
5. Edlund, A., P. D. Nichols, R. Roffey, and D. C. White. 1985. Extractable and lipopolysaccharide fatty acid and hydroxy acid profiles from Desulfovibrio species. Journal of Lipid Research 26:982-988.
6. Guckert, J. B., C. P. Antworth, P. D. Nichols, and D. C. White. 1985. Phospholipid ester-linked fatty acid profiles as reproducible assays for changes in prokaryotic community structure of estuarine sediments. FEMS Microbiol. Ecol. 31:147-158.
7. Guckert, J. B., M. A. Hood, and D. C. White. 1986. Phospholipid ester-linked fatty acid profile changes during nutrient deprivation of Vibrio cholerae: increases in the trans/cis ratio and proportions of cyclopropyl fatty acids. Appl. Environ. Microbiol. 52:794–801.
8. Hedrick, D.B., A Peacock, J.R. Stephen, S.J. Macnaughton, Julia Brüggemann, and David C. White. 2000. Measuring soil microbial community diversity using polar lipid fatty acid and denatured gradient gel electrophoresis data. J. Microbiol. Methods, 41, 235-248.
9. ITRC Internet Training on Natural Attenuation of Chlorinated Solvents in Groundwater: Principles and Practices, Apr 00.
10. Löffler, F. E., Q. Sun, et al. (2000). “16S rRNA gene-based detection of tetrachloroethene-dechlorinating Desulfuromonas and Dehalococcoides species.” Appl Environ Microbiol 66(4): 1369-1374.
11. Maymo-Gatell X, Chien Y, Gossett JM, Zinder SH. 1997. Isolation of a bacterium that reductively dechlorinates tetrachloroethene to ethene. Science 276(5318):1568-71.
12. Muyzer, G., E. C. De Waal, and A. G. Uitterlinden. 1993. Profiling of complex microbial populations by denaturing gradient gel electrophoresis analysis of polymerase chain reaction-amplified genes coding for 16S rRNA. Applied and Environmental Microbiology 59:695-700.
13. Ribosomal Database Project (http://rdp.cme.msu.edu. National Center for Biotechnology Information. (http://www.ncbi.nlm.nih.gov/)
14. Overman, J., "Family Chlorobiaceae," in M. Dworkin et al., eds., The Prokaryotes: An Evolving Electronic Resource for the Microbiological Community, 3rd edition, release 3.7, November 2, 2001, Springer-Verlag, New York, www.prokaryotes.com.
15. Ringelberg, D. B., G. T. Townsend, K. A. DeWeerd, J. M. Sulita, and D. C. White. 1994. Detection of the anaerobic dechlorinating microorganism Desulfomonile tiedjei in environmental matrices by its signature lipopolysaccharide branch-long-chain hydroxy fatty acids. FEMS Microbiol. Ecol. 14:9-18.
16. Schlötelburg, C. 2001. Mikrobielle Diversität und Dynamik einer 1,2-Dichlorpropan dechlorierenden Mischkultur (Microbial Diversity and Dynamics in a 1,2-Dichloropropane Dechlorinating Mixed Culture). Dissertation, Humbolt University, Berlin, Germany. In German: http://edoc.hu-berlin.de/dissertationen/schloetelburg-cord-2001-12-07/PDF/Schloetelburg.pdf
17. Sharp, R., D. Cossar, and R. Williams. 1995. Physiology and metabolism of Thermus. Biotechnol. Handb. 9:67-91.
18. Stephen, J. R., Y.-J. Chang, Y. D. Gan, A. Peacock, S. Pfiffner, M. Barcelona, D. C. White, and S. J. Macnaughton. 1999. Microbial characterization of a JP-4 fuel-contaminated site using a combined lipid biomarker/polymerase chain reaction-denaturing gradient gel electrophoresis (PCR-DGGE) based approach. Environmental Microbiology 1:231-241.
19. Tighe, S.W., de Lajudie, P., Dipietro, K., Lindström, K., Nick, G. & Jarvis, B.D.W. (2000). Analysis of cellular fatty acids and phenotypic relationships of Agrobacterium, Bradyrhizobium, Mesorhizobium, Rhizobium and Sinorhizobium species using the Sherlock Microbial Identification System. Int J Syst Evol Microbiol 50, 787-801.
20. Tsitko, I.V. Gennadi M. Zaitsev, Anatoli G. Lobanok, and Mirja S. Salkinoja-Salonen. 1999. Applied and Environmental Microbiology 65(2) 853-855.
21. White, D. C., W. M. Davis, J. S. Nickels, J. D. King, and R. J. Bobbie. 1979. Determination of the sedimentary microbial biomass by extractable lipid phosphate. Oecologia 40:51-62.
22. White, D. C., H. C. Pinkart, and D. B. Ringelberg. 1997. Biomass measurements: Biochemical approaches, p. 91-101. In C. J. Hurst, G. R. Knudsen, M. J. McInerney, L. D. Stetzenbach, and M. V. Walter (ed.), Manual of Environmental Microbiology. ASM Press, Washington.
23. White, D. C., and D. B. Ringelberg. 1995. Utility of signature lipid biomarker analysis in determining in situ viable biomass, community structure, and nutritional / physiological status of the deep subsurface microbiota. In P. S. Amy and D. L. Halderman (ed.), The microbiology of the terrestrial subsurface. CRC Press, Boca Raton.
24. White, D. C., J. O. Stair, and D. B. Ringelberg. 1996. Quantitative comparisons of in situ microbial biodiversity by signature biomarker analysis. Journal of Industrial Microbiology 17:185-196.
25. Vandamme P, Pot B, Gillis M, de Vos P, Kersters K, Swings J. Polyphasic taxonomy, a consensus approach to bacterial systematics. Microbiol Rev 1996 Jun;60(2):407-38.

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SITE LOGIC Report

Stable Isotope Probing (SIP) Study

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MI Identifier: 059HK

Report Date: January 27, 2011

Project: Solutia, Project Number J017210.06

Comments:

Executive Summary

Bio-Trap® samplers baited with ^{13}C labeled benzene or chlorobenzene were deployed for 29 days and then recovered for analysis. A complete summary of the results is provided in Table 1.

- A moderate level of biomass was detected in the ^{13}C benzene and in the ^{13}C chlorobenzene sampler (~10^5 cells/bead).
- Quantification of ^{13}C enriched biomass demonstrated a low level of utilization of both the ^{13}C benzene and the ^{13}C chlorobenzene into the biomass.
- Quantification of the ^{13}C dissolved inorganic carbon (DIC) showed a moderate level of mineralization occurring in the ^{13}C benzene sampler. There was a low level of mineralization occurring in the ^{13}C chlorobenzene sampler.
- Comparison of pre- and post-deployment concentrations of benzene demonstrated that loss of the benzene was occurring in the well.
- Although no loss of the chlorobenzene was seen, there is evidence of biodegradation occurring as there was incorporation of the ^{13}C chlorobenzene into the biomass.

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Overview of Approach

Stable Isotope Probing (SIP)

Stable isotope probing (SIP) is an innovative method to track the environmental fate of a "labeled" contaminant of concern to unambiguously demonstrate biodegradation. Two stable carbon isotopes exist in nature – carbon 12 (^{12}C) which accounts for 99% of carbon and carbon 13 (^{13}C) which is considerably less abundant (~1%). With the SIP method, the Bio-Trap® sampler is baited with a specially synthesized form of the contaminant containing ^{13}C labeled carbon. Since ^{13}C is rare, the labeled compound can be readily differentiated from the contaminants present at the site. Following deployment, the Bio-Trap® is recovered and three approaches are used to conclusively demonstrate biodegradation of the contaminant of concern.

- The loss of the labeled compound provides an estimate of the degradation rate (% loss of ^{13}C).
- Quantification of ^{13}C enriched phospholipid fatty acids (PLFA) indicates incorporation into microbial biomass.
- Quantification of ^{13}C enriched dissolved inorganic carbon (DIC) indicates contaminant mineralization.

Phospholipid Fatty Acids (PLFA): PLFA are a primary component of the membrane of all living cells including bacteria. PLFA decomposes rapidly upon cell death (1, 2), so the total amount of PLFA present in a sample is indicative of the viable biomass. When combined with stable isotope probing (SIP), incorporation of ^{13}C into PLFA is a conclusive indicator of biodegradation.

Some organisms produce "signature" types of PLFA allowing quantification of important microbial functional groups (e.g. iron reducers, sulfate reducers, or fermenters). The relative proportions of the groups of PLFA provide a "fingerprint" of the microbial community. In addition, *Proteobacteria* modify specific PLFA during periods of slow growth or in response to environmental stress providing an index of their health and metabolic activity.

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Results

Table 1. Summary of the results obtained from the Bio-Trap® Units. Interpretation guidelines and definitions are found later in the document.

Sample Name	BSA-MW2D-1110	CPA-MW3D-1110
^{13}C Contaminant Loss		
Benzene Pre-deployment (mg/bd)	1.13	-----
Benzene Post-deployment (mg/bd)	0.91	-----
Chlorobenzene Pre-deployment (mg/bd)	-----	1.00
Chlorobenzene Post-deployment (mg/bd)	-----	1.18
Biomass & ^{13}C Incorporation		
Total Biomass (Cells/bd)	1.85E+05	3.63E+05
^{13}C Enriched Biomass (Cells/bd)	1.60E+03	3.42E+03
Average PLFA Del (‰)	92	45
Maximum PLFA Del (‰)	372	155
^{13}C Mineralization		
DIC Del (‰)	250	62
% 13C	1.36	1.16
Community Structure (% total PLFA)		
Firmicutes (TerBrSats)	4.9	2.9
Proteobacteria (Monos)	62.7	46.4
Anaerobic metal reducers (BrMonos)	0.0	0.0
Actinomycetes (MidBrSats)	5.4	21.3
General (Nsats)	18.6	19.9
Eukaryotes (Polyenoics)	8.4	9.5
Physiological Status (Proteobacteria only)		
Slowed Growth	0.24	0.52
Decreased Permeability	0.27	0.67

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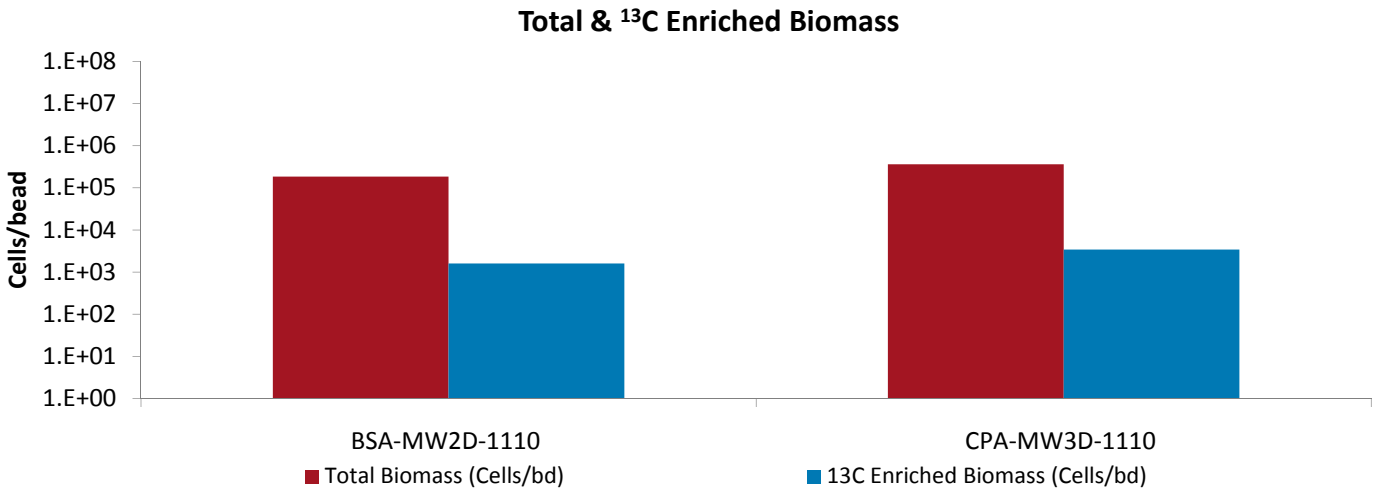

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

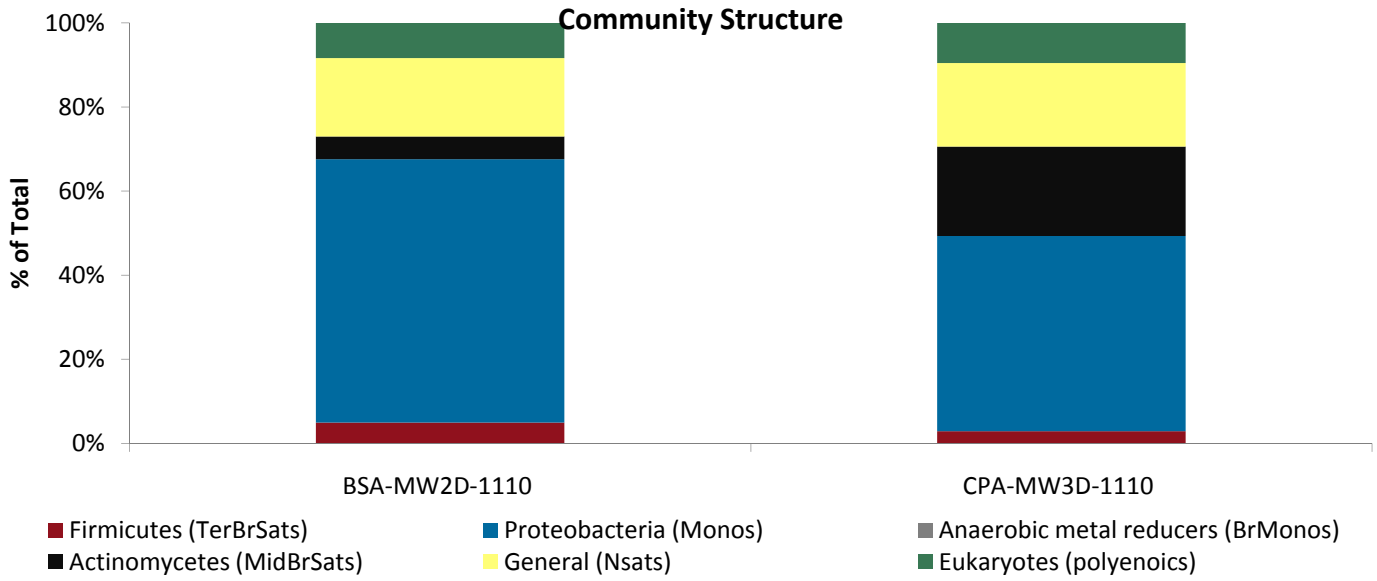

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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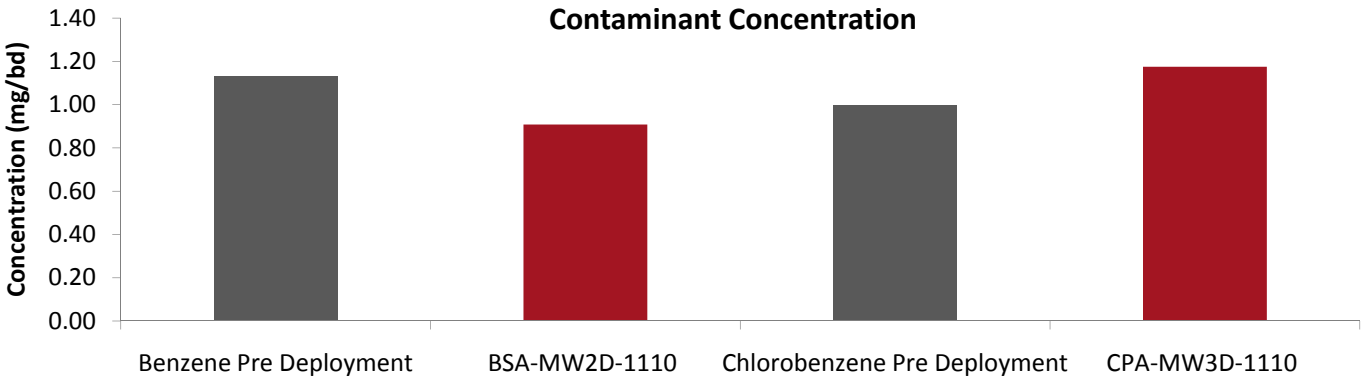

Figure 3. Comparison of Pre-deployment concentrations loaded on Bio-Sep beads to the concentrations detected after incubation.

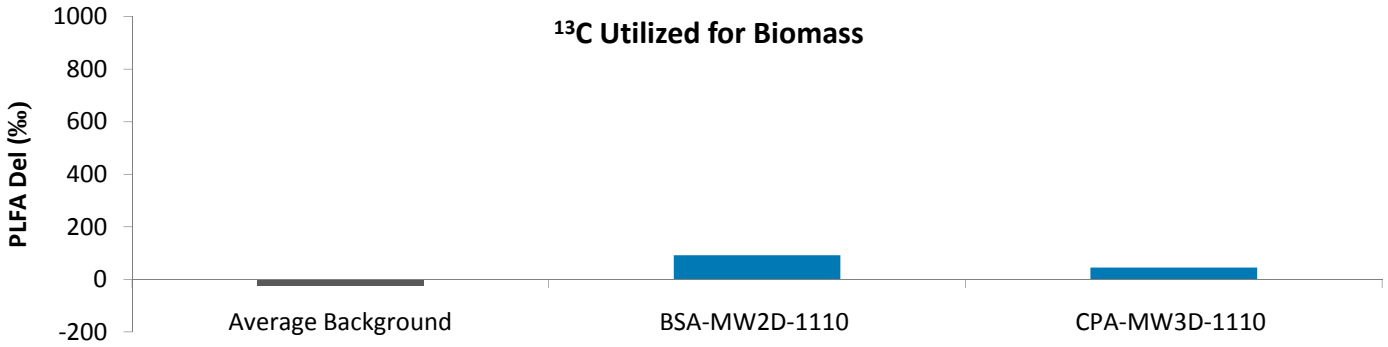

Figure 4. Comparison of the average Del value obtained from PLFA biomarkers from each Bio-Trap® unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

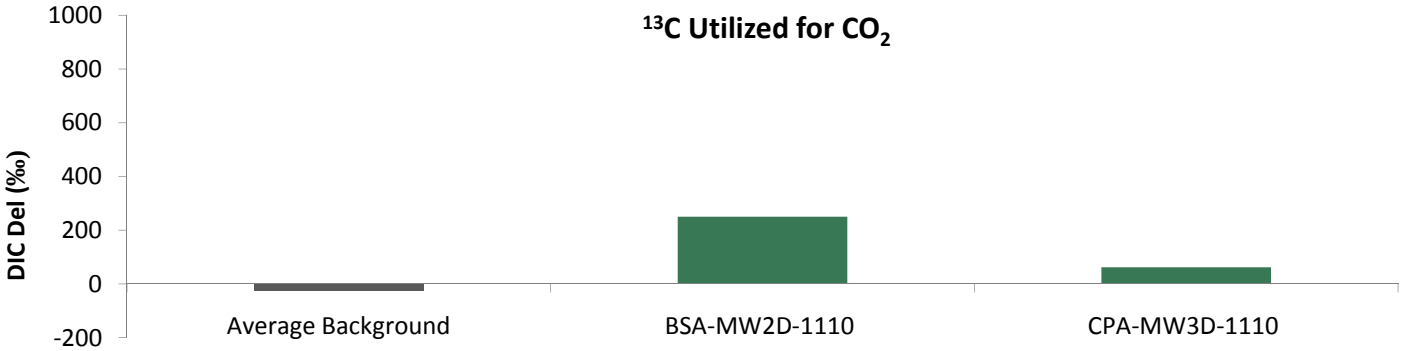

Figure 5. Comparison of the Del value obtained from DIC from each Bio-Trap® unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

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Interpretation

Interpretation of the results of the SIP Bio-Trap® study must be performed with due consideration of site conditions, site activities, and the desired treatment mechanism. The following discussion describes interpretation of results in general terms and is meant to serve as a guide.

Contaminant Concentration: Bio-Traps® are baited with a ^{13}C labeled contaminant of concern and a pre-deployment concentration is determined prior to shipping. Following deployment, Bio-Traps® are recovered for analysis including measurement of the concentration of the ^{13}C labeled contaminant remaining. Pre- and post-deployment concentrations are used to calculate percent loss.

Biomass Concentrations: PLFA analysis is one of the most reliable and accurate methods available for the determination of viable (live) biomass. Phospholipids break down rapidly upon cell death, so biomass calculations based on PLFA content do not include "fossil" lipids from dead cells. Total biomass (cells/bead) is calculated from total PLFA using a conversion factor of 20,000 cells/pmole of PLFA. When making comparisons between wells, treatments, or over time, differences of one order of magnitude or more are considered significant.

Total Biomass		
Low	Moderate	High
10^3 to 10^4 cells	10^5 to 10^6 cells	10^7 to 10^8 cells

For SIP studies, the ^{13}C enriched PLFA is also determined to conclusively demonstrate contaminant biodegradation and quantify incorporation into biomass as a result of the ^{13}C being used for cellular growth. The % ^{13}C incorporation (^{13}C enriched biomass/total biomass) is also provided in the data summary table, but the value must be interpreted carefully especially when comparing wells or treatments. Typically, biodegradation of a contaminant of concern is performed by a small subset of the total microbial community. For Bio-Traps® with large total biomass, the % ^{13}C incorporation value could be low despite significant ^{13}C labeled biomass and loss of the compound. The % ^{13}C incorporation should be viewed in light of total biomass, percent loss, and dissolved inorganic carbon (DIC) results.

^{13}C enrichment data is often reported as a del value. The del value is the difference between the isotopic ratio ($^{13}C/^{12}C$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand, denoted ‰).

R_{std} is the naturally occurring isotopic ratio and is approximately 0.011180 (roughly 1% of naturally occurring carbon is ^{13}C). The isotopic ratio, R_x, of PLFA is typically less than the R_{std} under natural conditions, resulting in a del value between -20 and -30‰. For a SIP Bio-Trap® study, biodegradation and incorporation of the ^{13}C labeled compound into PLFA results in a larger $^{13}C/^{12}C$ ratio (R_x) and thus del values greater than under natural conditions. Typical PLFA del values are provided below.

PLFA Del (‰)		
Low	Moderate	High
0 to 100	100 to 1,000	>1,000

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Dissolved Inorganic Carbon (DIC): Often, bacteria can utilize the ^{13}C labeled compound as both a carbon and energy source. The ^{13}C portion used as a carbon source for growth can be incorporated into PLFA as discussed above, while the ^{13}C used for energy is oxidized to $^{13}CO_2$ (mineralized).

^{13}C enriched CO_2 data is often reported as a del value as described above for PLFA. Under natural conditions, the R_x of CO_2 is approximately the same as R_{std} (0.01118 or about 1.1% ^{13}C). For an SIP Bio-Trap® study, mineralization of the ^{13}C labeled contaminant of concern would lead to a greater value of R_x (increased $^{13}CO_2$ production) and thus a positive del value. As with PLFA, del values between 0 and 100‰ are considered low, values between 100 and 1,000‰ are considered moderate, and values greater than 1,000‰ are considered high. Thus DIC $\%^{13}C$ are considered low if the value is less than 1.23%, moderate if between 1.23 and 2.24%, and high if greater than 2.24%.

Dissolved Inorganic Carbon (DIC) Del and % ^{13}C		
Low	**Moderate**	**High**
0 to 100	100 to 1,000	>1,000
1.11 to 1.23%	1.23 to 2.24 %	>2.24 %

Community Structure (% total PLFA): Community structure data is presented as a percentage of PLFA structural groups normalized to the total PLFA biomass. The relative proportions of the PLFA structural groups provide a "fingerprint" of the types of microbial groups (e.g. anaerobes, sulfate reducers, etc.) present and therefore offer insight into the dominant metabolic processes occurring at the sample location. Thorough interpretation of the PLFA structural groups depends in part on an understanding of site conditions and the desired microbial biodegradation pathways. For example, an increase in mid chain branched saturated PLFA (MidBrSats), indicative of sulfate reducing bacteria (SRB) and *Actinomycetes*, may be desirable at a site where anaerobic BTEX biodegradation is the treatment mechanism, but would not be desirable for a corrective action promoting aerobic BTEX or MTBE biodegradation. The following table provides a brief summary of each PLFA structural group and its potential relevance to bioremediation.

Table 2. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in eukaryotes such as fungi, protozoa, algae, higher plants, and animals.	Eukaryotic scavengers will often rise up and prey on contaminant utilizing bacteria

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Physiological Status (*Proteobacteria*): Some *Proteobacteria* modify specific PLFA as a strategy to adapt to stressful environmental conditions (3, 4). For example, *cis* monounsaturated fatty acids may be modified to cyclopropyl fatty acids during periods of slowed growth or modified to *trans* monounsaturated fatty acids to decrease membrane permeability in response to environmental stress. The ratio of product to substrate fatty acid thus provides an index of their health and metabolic activity. In general, status ratios greater than 0.25 indicate a response to unfavorable environmental conditions.

Glossary

Del: A Del value is the difference between the isotopic ratio ($^{13}C/^{12}C$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand denoted ‰).

$$Del = (R_x - R_{std})/R_{std} \times 1000$$

References

1. White, D.C., W.M. Davis, J.S. Nickels, J.D. King, and R.J. Bobbie. 1979. Determination of the sedimentary microbial biomass by extractable lipid phosphate. Oecologia 40:51-62.
2. White, D.C. and D.B. Ringelberg. 1995. Utility of signature lipid biomarker analysis in determining in situ viable biomass. In P.S. Amy and D.L. Halderman (eds.) The microbiology of the terrestrial surface. CRC Press, Boca Raton.
3. Guckert, J.B., M.A. Hood, and D.C. White. 1986. Phospholipid ester-linked fatty acid profile changes during nutrient deprivation of *Vibrio chloerae*: increases in the trans/cis ratio and proportions of cyclopropyl fatty acids. Applied and Environmental Microbiology. 52:794-801.
4. Tsitko, I.V., G. M. Zaitsev, A. G. Lobanok, and M.S. Salkinoja-Salonen. 1999. Effect of aromatic compounds on cellular fatty acid composition of *Rhodococcus opacus*. Applied and Environmental Microbiology. 65:853-855.

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