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December 20, 2010

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 3rd Quarter 2010 Data Report Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Mr. Bardo:

Enclosed please find the Long-Term Monitoring Program 3rd 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,

it the finite

Gerald M. Rinaldi Manager, Remediation Services

Enclosure

cc: Distribution List

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THIRD 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. J017210.02

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<u>THIRD QUARTER 2010</u> <u>DATA REPORT</u> <u>LONG-TERM MONITORING PROGRAM</u> <u>SOLUTIA INC.</u> <u>W.G. KRUMMRICH FACILITY</u> <u>SAUGET, ILLINOIS</u>

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<u>THIRD QUARTER 2010</u> <u>DATA REPORT</u> <u>LONG-TERM MONITORING PROGRAM</u> <u>SOLUTIA INC.</u> <u>W.G. KRUMMRICH FACILITY</u> <u>SAUGET, ILLINOIS</u>

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THIRD 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 3rd Quarter 2010 (3Q10) 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.

<u>Groundwater Sampling Location and Frequency</u>. 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 nine quarters have been completed as of 3Q10.

<u>Groundwater Sampling Parameters</u>. During the 3Q10 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 (<u>www.microbe.com</u>) 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 3Q10 field activities from September 15 through September 23, 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:

<u>Groundwater Level Measurements</u>. 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 3Q10 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.

The Mississippi River elevation was approximately 11 feet lower than it was during the 2Q10 event. Groundwater levels in monitoring wells near the river were as much as 12 feet lower during this event than in the 2Q10 event.

<u>Groundwater Sampling</u>. 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).

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Samples collected for dissolved iron, dissolved organic carbon and dissolved manganese analysis were filtered in the field using in-line 0.2 micron disposable filters, represented by a notation of "F (0.2)" in the sample nomenclature. Samples were inadvertently not collected for ferrous iron in the field. Dissolved organic carbon was detected at concentrations exceeding total organic carbon for each of the 10 groundwater samples. After consultation with the personnel at the analytical testing laboratory, a controlled test was conducted on the 0.2 micron filters used during the 3Q10 sampling. Based on the results of the controlled filter test, it appears that the filters were contributing organic carbon to the filtered sample analytical test results. Therefore, for sampling in 4Q10 and after, the same filters as had been used in 2Q10 and before will be used.

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.: Third quarter (September) 2010, 0910
- "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°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.

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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.

<u>Biodegradation Evaluation Sampling</u>. 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 September 24, 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 October 25, 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.

3.0 LABORATORY PROCEDURES

Samples were analyzed by TestAmerica for VOCs, SVOCs 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) KPS060.

The samples contained in SDG KPS060 are listed below:

CPA-MW5D-0910 CPA-MW5D-F(0.2)-0910 BSA-MW5D-0910 BSA-MW5D-0910-MS BSA-MW5D-0910-MSD Trip Blank #1 BSA-MW4D-0910 BSA-MW4D-F(0.2)-0910 CPA-MW4D-F(0.2)-0910 BSA-MW3D-0910 BSA-MW3D-F(9.2)-0910 BSA-MW3D-0910-EB CPA-MW3D-0910 CPA-MW3D-F(0.2)-0910 BSA-MW2D-0910 BSA-MW2D-F(0.2)-0910 BSA-MW1S-0910 BSA-MW1S-F(0.2)-0910 Trip Blank #2 CPA-MW2D-0910 CPA-MW2D-F(0.2)-0910 CPA-MW1D-0910 CPA-MW1D-F(0.2)-0910 Trip Blank #3 BSA-MW1S

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 96.2 percent.

5.0 OBSERVATIONS

Groundwater analytical detections and MNA results for the 3Q10 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 seven of the ten wells sampled in 3Q10, ranging from 26 μ g/L (CPA-MW-4D) to 620,000 μ g/L (BSA-MW-1S).

Downgradient of the Former Benzene Storage Area, benzene was detected in the DHU at concentrations of 140,000 μ g/L (BSA-MW-2D) and 57 μ g/L (BSA-MW-3D). 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-4D.

Benzene was detected at the Former Chlorobenzene Process Area at a concentration of 5,800 μ g/L (CPA-MW-1D). Downgradient of the Former Chlorobenzene Storage Area, benzene was detected in the DHU at concentrations of 100 μ g/L (CPA-MW-3D) and 26 μ g/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 3Q10, ranging from 290 μ g/L (CPA-MW-3D) to 46,200 μ g/L (CPA-MW-1D).

Downgradient of the Former Chlorobenzene Storage Area, total chlorobenzenes were detected in the DHU at concentrations of 22,000/23,300 μ g/L at the North Tank Farm (CPA-MW-2D and duplicate), along with concentrations of 290 μ g/L (CPA-MW-3D) and 570 μ g/L (CPA-MW-4D). Total chlorobenzenes were detected in the DHU near the river north of SA2 GMCS at a concentration of 1,100 μ g/L (CPA-MW-5D).

Downgradient of the Former Benzene Storage Area, total chlorobenzenes were detected at concentrations of 1,600 μ g/L (BSA-MW-2D) and 1,518 μ g/L (BSA-MW-3D). North of the SA2 GMCS, near the river, total chlorobenzenes were detected in the DHU at concentrations of 2,357 μ g/L (BSA-MW-4D) and 350 μ g/L (BSA-MW-5D).

Figure 4 displays benzene and total chlorobenzenes results from the 3Q10 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

US EPA ARCHIVE DOCUMENT

See last page of table for notes.

<u>Table 1</u> Monitoring Well Gauging Information

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				into months	or chi Gauging	mormation				
				Constructi	ion Details				September 2010	
~				Depth to	Depth to		Bottom of		Î	
	Well ID	Ground	Casing	Тор	Bottom	Top of Screen	Screen	Depth to	Depth to	Water
		Elevation*	Elevation*	of Screen	of Screen	Elevation*	Elevation*	Water	Bottom	Elevation*
1		(feet)	(feet)	(feet bgs)	(feet bgs)	(feet)	(feet)	(feet btoc)	(feet btoc)	(feet)
~	Shallow Hydrogeologic Unit (SH	U 395-380 feet N	AVD 88)							
	BSA-MW-1S	409.49	412.31	19.68	24.68	389.81	384.81	11.38	NG	400.93
	Middle Hydrogeologic Unit (MH	U 380-350 feet N	AVD 88)							
\mathbf{O}	PMA-MW-1M	410.32	410.08	54.54	59.54	355.78	350.78	9.14	NG	400.94
	PMA-MW-2M	412.26	411.93	56.87	61.87	355.39	350.39	10.95	NG	400.98
\circ	PMA-MW-3M	412.36	412.10	57.07	62.07	355.29	350.29	11.20	NG	400.90
	PMA-MW-5M	411.27	410.97	52.17	57.17	359.10	354.10	9.10	NG	401.87
	PS-MW-1	409.37	412.59	37.78	42.78	371.59	366.59	11.26	NG	401.33
	Deep Hydrogeologic Unit (DHU	350 feet NAVD 8	8 - Bedrock)							
п	BSA-MW-2D	412.00	415.13	68.92	73.92	343.08	338.08	14.24	NG	400.89
	BSA-MW-3D	412.91	415.74	107.02	112.02	305.89	300.89	17.30	NG	398.44
~	BSA-MW-4D	425.00	424.69	118.54	123.54	306.46	301.46	27.24	NG	397.45
	BSA-MW-5D	420.80	420.49	115.85	120.85	304.95	299.95	23.50	NG	396.99
	CPA-MW-1D	408.62	408.32	66.12	71.12	342.50	337.50	6.98	NG	401.34
_	CPA-MW-2D	408.51	408.20	99.96	104.96	308.55	303.55	7.61	NG	400.59
75	CPA-MW-3D	410.87	410.67	108.20	113.20	302.67	297.67	9.40	NG	401.27
-	CPA-MW-4D	421.57	421.20	116.44	121.44	305.13	300.13	22.50	NG	398.70
m	CPA-MW-5D	411.03	413.15	107.63	112.63	303.40	298.40	18.15	NG	395.00
	DNAPL-K-1	413.07	415.56	108.20	123.20	304.87	289.87	14.30	NG	401.26
9	DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	6.54	NG	401.18
	DNAPL-K-3	412.13	411.91	104.80	119.80	307.33	292.33	10.54	NG	401.37
-	DNAPL-K-4	409.48	409.15	102.55	117.55	306.93	291.93	8.28	NG	400.87
	DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	10.50	NG	401.41
Δ.	DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	9.00	NG	401.09
	DNAPL-K-7	408.32	407.72	100.40	115.40	307.92	292.92	6.58	NG	401.14
	DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	10.49	NG	400.89
	DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	4.12	NG	401.85
5	DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	12.05	NG	401.20
	DNAPL-K-11	412.00	411.78	105.46	120.46	306.74	291.74	10.50	NG	401.28
	GM-9C	409.54	411.21	88.00	108.00	321.54	301.54	9.52	NG	401.69

See last page of table for notes.

Table 1 **Monitoring Well Gauging Information**

				Monitoring	wen Gauging	mation				
				Constructi	on Details				September 2010	
~				Depth to	Depth to		Bottom of			
	Well ID	Ground	Casing	Тор	Bottom	Top of Screen	Screen	Depth to	Depth to	Water
		Elevation*	Elevation*	of Screen	of Screen	Elevation*	Elevation*	Water	Bottom	Elevation*
5		(feet)	(feet)	(feet bgs)	(feet bgs)	(feet)	(feet)	(feet btoc)	(feet btoc)	(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	16.40	NG	399.20
	GWE-2D (PIEZ-2D)	417.45	417.14	127.00	137.00	290.45	280.45	21.08	NG	396.06
\mathbf{O}	GWE-4D (TRA3-PZADHU)	406.05	405.74	74.00	80.00	332.05	326.05	6.58	NG	399.17
	GWE-10D (PIEZ 6D)	410.15	412.87	102.50	112.50	307.65	297.65	12.18	NG	400.69
\mathbf{O}	GWE-14D (TRA5-PZCDHU)	420.47	422.90	90.00	96.00	330.47	324.47	25.14	NG	397.76
	PMA-MW-4D	411.22	410.88	68.84	73.84	342.38	337.38	9.92	NG	400.96
	PMA-MW-6D	407.63	407.32	96.49	101.49	311.14	306.14	5.65	NG	401.67
	PSMW-6	404.11	406.63	99.80	104.80	304.31	299.31	7.96	NG	398.67
п	PSMW-9	403.92	403.52	100.40	105.40	303.52	298.52	1.80	NG	401.72
	PSMW-10	409.63	412.18	101.23	106.23	308.40	303.40	15.15	NG	397.03
	PSMW-13	405.80	405.53	106.08	111.08	299.72	294.72	6.18	NG	399.35
	PSMW-17	420.22	423.26	121.25	126.25	298.97	293.97	28.50	NG	394.76
	Notes:									
\mathbf{C}	* - Elevation based upon North An	nerican Vertical D	atum (NAVD) 88	datum						
	bgs - Below ground surface									
ΩŽ.	btoc - Below top of casing									
	NG - Not gauged									
-										
α.										

SN

Table 2 **Groundwater Analytical Results**

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				VOC (µg/L)				SVOC	(µg/L)	
Sample ID	Sample Date	Benzene	Chlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	4-Chloroaniline	2-Chlorophenol	1,4-Dioxane	1,2,4-Trichlorobenzene
SENZENE STORAGE AREA										
SA-MW-1S-0910	9/22/10	590,000	<5000	<5000	<5000	<5000	NA	<9.7	NA	<9.7
SA-MW-2D-0910	9/22/10	140,000	1,600	<1000	<1000	<1000	NA	<9.7	27	<9.7
SA-MW-3D-0910	9/22/10	57	1,200	16	12	290	NA	13	<9.7	<9.7
SA-MW-4D-0910	9/22/10	<20	2,320	<20	<20	37	NA	24	33	<9.5
SA-MW-5D-0910	9/21/10	<5	350	<5	<5	<5	NA	<9.7	<9.7	<9.7
CHLOROBENZENE PROCESS AREA										
CPA-MW-1D-0910	9/23/10	5,800	17,000	18,000	1,200	10,000	NA	<94	NA	780
CPA-MW-2D-0910	9/23/10	300	20,000	<200	<200	2,000	NA	18	NA	<10
CPA-MW-2D-0910-AD	9/23/10	290	21,000	<200	<200	2,300	NA	22	NA	<10
CPA-MW-3D-0910	9/22/10	100	290	<5	<5	<5	40	<9.8	NA	<9.8
CPA-MW-4D-0910	9/22/10	26	570	<10	<10	<10	85	<9.5	NA	<9.5
CPA-MW-5D-0910	9/21/10	<20	1,100	<20	<20	<20	<19	<9.5	NA	<9.5

< = Result is non-detect, less than the reporting limit given

BOLD indicates concentration greater than the reporting limit

AD = Analytical Duplicate

NA = Sample not analyzed for select analyte in accordance with Revised LTMP Work Plan

Table 3 Monitored Natural Attenuation Results Summary

0.33

0.53

0.56

0.68

0.43

0.14

0.34

0.72

0.24

3.5

litrogen, Nitrate (mg/L)

< 0.05

< 0.05

< 0.05

0.9

< 0.05

<1

< 0.05

<0.05

< 0.05

<0.05

Methane (ug/l)

9,100

17,000

240

44

5,100

18,000

5,900

15,000

9.900

13

Sulfate as SO4 (mg/L)

<5

<5

270

53

69

<100

<5

<5

<5

1,700

					Willing		ii Attenua	tion Resu	its Summa	ігу
Sample ID	Sample Date	Alkalinity (mg/L)	Carbon Dioxide (mg/l)	Chloride (mg/L)	Ethane (ug/L)	Ethylene (ug/l)	ron (mg/L)	ron, Dissolved (mg/L)	Manganese (mg/L)	Manganese, Dissolved (mg/l)
BENZENE STORAGE AREA	I									
BSA-MW-1S-0910		830	32	150	< 0.35	< 0.33	3.7		0.43	
BSA-MW-1S-F(0.2)-0910								0.79		0.
BSA-MW-2D-0910		660	35	94	13	< 0.33	4		0.57	
BSA-MW-2D-F(0.2)-0910								3		0.
BSA-MW-3D-0910		480	32	76	1.2	1.3	12		0.57	
BSA-MW-3D-F(0.2)-0910								11		0.
BSA-MW-4D-0910		610	34	160	3	<0.33	10		0.71	
BSA-MW-4D-F(0.2)-0910								8.3		0.
BSA-MW-5D-0910		730	50	260	13	<0.33	6.4		0.41	
BSA-MW-5D-F(0.2)-0910								8.3		0.
CHLOROBENZENE PROCESS ARE	A									
CPA-MW-1D-0910		990	<5	140	40	< 0.33	3.5		0.28	
CPA-MW-1D-F(0.2)-0910								1.8		0.
CPA-MW-2D-0910		550	27	70	5.8	<0.33	5.7		0.37	
CPA-MW-2D-F(0.2)-0910								4.7		0.
CPA-MW-3D-0910		610	51	200	16	< 0.33	15		0.72	
CPA-MW-3D-F(0.2)-0910								13		0.
CPA-MW-4D-0910		770	58	280	13	<0.33	11		0.24	
CPA-MW-4D-F(0.2)-0910								9.9		0.
CPA-MW-5D-0910		340	94	280	2.6	<0.33	96		3.5	
								94		

< = Result is non-detect, less than the reporting limit given

A blank space indicated sample not analyzed for select analyte

J017210.02 December 2010

ORP (mV)

-137

-93

-112

-111

-112

-64

-91

-115

-118

-93

DO (mg/L)

0

4.67

1.96

0.29

0.16

0

0.21

0.07

0.02

0.79

Dissolved Organic Carbon (mg/L)

14 R

9.4 R

8.4 R

9.8 R

81 R

85 R

86 R

15 R

10 R

8.4 R

otal Organic Carbon (mg/L)

7.6

5.9

4.4

5.4

6.1

15

11

11

6.5

4.4

Ĕ











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

2. Groundwater levels were measured September 23 & 24, 2010.

3. Contours genterated primarily using surfer software version 8. Some interpretation was done using professional judgement and contours lines were modiffied 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: 11-22-10	Date: 12	-17-10	Date: 12-17-10			
		GEOTE	CHNOLC FROM THE	GYZ GROUND UP			
		3Q 2	2010				
	Long-Ter	m Mon	itoring	Program			
	Sauget, Illinois						
2,000	POTENTIO MIDDLE/DEE	METRI P HYD	C SURI ROGEC	FACE MAP DLOGIC UNIT			
	Project Numb J017210.02	er	Р	LATE 3			



NOTES:

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

 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.



APPENDIX A

GROUNDWATER PURGING AND SAMPLING FORMS

PROJECT NAME: DATE: 9 MONITORING WI	W6K 1-21-16 ELL ID: 8	LTM 3- SA - MW-	Q 10 SD	PROJECT NUM WEATHER: SAMPLE ID:	BER: Joi 80° (BSA - MW-	7210.07 :lear 5D - 091	0	FIELD	PERSONNEL:	teve Glaha,	m
INITIAL DATA	n an				an a		an a	an a	MARKEN MARKAN CONSIGNIER IN THE STREET AND A S		
Well Diameter: Measured Well Dep Constructed Well D Depth to Water (bto Depth to LNAPL/D Depth to Top of Scr Screen Length:	oth (btoc): pepth (btoc): pck): NAPL (btoc): reen (btoc): 	120.54 19.0 115.54 5.0	ft ft ft ft ft ft	Water Column Heig If Depth to Top of So Place Pump at: Tota If Depth to Top of So Place Pump at: Total If Screen Length and DNPL Present	ht (do not include LNAF creen is > Depth to Wate I Well Depth - 0.5 (Scre creen is < Depth to Wate Well Depth -)9.5 X Wa Vor water column height	PL or DNAPL): er AND Screen I en Length + DN er AND Water C ater Column Hei : is <4 ft, Place F If Present, Do I	Length is <4 feet APL Column Heigh Column Height and S ight + DNAPL Colu Pump at: Total Well Not Sample	t) = Screen Length are < mn Height) = Depth - 2 ft =	ft 113.04 ft btoc 4 ft, ft btoc ft btoc	Volume of Flow Thro Minimum Purge Volu (3 x Flow Through (Ambient PID/FID Red Wellbore PID/FID Red	ugh Cell): 1000 mL me = Cell Volume) 300 0 mL ading: 0.0 ppm ading: 0.0 ppm
PURGE DATA Pump Type:	QED	Sample	Pro	Bladder P.	٨D	ing any concern	HAVE THE CTA	PH 17 ATION DAI			
1 71					1	± 0.2	± 0.2	$\pm 3\%$	+ 10%	$\pm 10\%$ or ± 0.2	unless $\%$.
Purge Volume		Depth to	T		T	1	Temp	Cond	Trabidita		
(mL)	Time	Water (ft)		Color	Odor	рН	(°C)	Ms/cm	(NTUs)	(mg/l)	ORP (mu)
600	1535	19.0	Sligh	dly silty	NO	7.77	22.81	2.09	6.7		
1000	1537	19.0	1)		7.55	20.95	2.24	4.5	0.70	-107
1500	1541	19.0]		7.17	20.75	z.3/	4.4	0.39	-108
2000	1548	19.0				6.69	20.61	2.31	3.1	0.25	-112
2500	1552	19.0				6.63	20.57	2.30	3.0	0.22	-113
<u>3000</u>	1221	19.0				6.57	20.72	2.30	2.4	0.16	-112
Start Time:	1535				Elapsed Time:	27	2 min		Water Onal	ty Motor ID: Use '	- 4-52
Stop Time:	1557			Average P	urge Rate (mL/min):	15	Ó		Dat	e Calibrated:	-21-10
SAMPLING DATA Sample Date: Sample Method: VOA Vials, No Hear COMMENTS:	dspace X MNA:	1-21-10 Flow bl Initials: AIKCLIV	ladder S		Sample Time: Sample Flow Rate:	is is Nethan	58 10 ml/min 10. Njitra	Q/	Analysis: VOC VQC Samples: <u>MS</u>	SUOC, Meta , MSD	IS, MNA
	Sulta	re, Doc	, 	, Total É	Dissolved	Iron, 1	otal & T	rssolved	Manganese	2	

PROJECT NAME: DATE: 9 MONITORING WI	<u>WGK -</u> 22-10 ELL ID: <u>BS</u>	LTM 3Q A-mw-4	<u>10</u> РКОЛ WEAT D SAMP	ECT NUMBEI	2: <u>Joi</u> 80° 85A - MW	7210.02 cloudy - 40-091	0	FIELD	PERSONNEL:	Steve Glahan Keuin Kobert	n S
NITIAL DATA	a an an ann an an an an an ann an ann an a	an a					n in generation of the data sector description of the sector of the sector of the sector of the sector of the s	an a			
Vell Diameter: Acasured Well Dep Constructed Well D Depth to Water (bto Depth to LNAPL/D) Depth to Top of Scr creen Length:	oth (btoc): lepth (btoc): lck): NAPL (btoc): een (btoc):	2''	in Water Co ft If Depth to ft Place Pun ft If Depth to ft Place Pun ft If Screen I ft DNPL Pre	lumn Height (o o Top of Scree up at: Total W o Top of Scree up at: Total We Length and/or ssent	lo not include LNAP n is > Depth to Wate ell Depth - 0.5 (Scree n is < Depth to Wate 1l Depth -)9.5 X Wa water column height N Q	L or DNAPL): r AND Screen Li m Length + DN4 r AND Water Co ter Column Heig is <4 ft, Place Pu If Present, Do N	ength is <4 feet APL Column Heig lumn Height and ht + DNAPL Colu ump at: Total Well ot Sample	98.39 ht) = $\mathbf{Screen Length are < a}$ mm Height) = $\mathbf{Depth - 2 ft} =$	i ft i i i </td <td>Volume of Flow Throu Minimum Purge Volur (3 x Flow Through C Ambient PID/FID Rea Wellbore PID/FID Rea</td> <td>ngh Cell): 1000 ml ne = ell Volume) 3000 ml ding: 0.0 pp ding: 0.0 pp</td>	Volume of Flow Throu Minimum Purge Volur (3 x Flow Through C Ambient PID/FID Rea Wellbore PID/FID Rea	ngh Cell): 1000 ml ne = ell Volume) 3000 ml ding: 0.0 pp ding: 0.0 pp
Imp Type:	QED	SAMPLE	Pro Bla	Wer Pu	c c D	-					
						+02	± 0.7	BILIZATION PAR	LAMETERS BEEN SA	TISFIED? All are units	unless %.
Purge Volume		Depth to	- -	<u> </u>			 	± 370	± 10%	$\pm 10\% \text{ or } \pm 0.2$	± 20
(mL)	Time	Water (ft)	Color		Odor	nH	(°C)	Cond. Ms/cm	Turbidity	DO (ma //)	ORP
750	5752	24.85	Cleat	•	lightly sweat		(0)	1415/010	(14108)	(mg/1)	(mv)
1500	0754	24.83			1	6.89	16.32	1.82	0.0	1.76	~ (G
2500	0800	24.95			and a second	6.04	16.53	1.81	0.0	0.26	-98
3500	0805	24.85				5.76	16.74	1.80	0.0	0.29	~108
5500	0310	24.85				5.71	16.50	1.81	0, 0	0.25	-110
		24.00				5.67	16.72	1-79	0.0	0,29	-11]
ırt Time: op Time:	0752			Average Purge	Elapsed Time: Rate (mL/min):	23	min	I.	Water Qua Da	lity Meter ID: Horibo	u-52 22-10
MPLING DATA											
mple Date: mple Method:	9-22-	10 Flow Blad	des	Sar	Sample Time:	20	0 m2/min	2 QA	Analysis: Vo /QC Samples:	c, succ, metals, None	mNia
A Vials, No Head	lspace 🕅	Initials:	SWG								
DMMENTS:	MNA: / Sulfat	Aikalin 2, Doc,	ity, CD. TOC, TO	z Chl fal & T	oride, M	ethane Tron. T	e. Nitra stal & D	te, assolved	Ferrous Iron (Filtered	0.2 micron) =	
<u> </u>									<u>م</u>		

MONITORING WE		5A - MW- 31	WEATHER: SAMPLE ID:	BSA - MW	<u>Rain</u> - 3D - 09	10			Keuin Robert	S
NITIAL DATA	and a second			nn an a		= = ++ ; = +== = ++++ += ++++++++++++++		nan da Balan da mana katala ya mana katala ku mana katala ku mana katala ku mana katala ku mana ku mana ku mana		
Vell Diameter: Acasured Well Depi Constructed Well De Depth to Water (btoo Depth to LNAPL/DP Depth to Top of Scre creen Length:	th (btoc): epth (btoc): ck): NAPL (btoc): een (btoc):	2 ¹¹ in 114.85 ft 15.95 ft 109.85 ft 5.0 ft	Water Column Hei If Depth to Top of Place Pump at: To If Depth to Top of Place Pump at: Tot If Screen Length at DNPL Present	ght (do not include LNA Screen is > Depth to Wa tal Well Depth - 0.5 (Scr Screen is < Depth to Wa al Well Depth -)9.5 X V nd/or water column heig	APL or DNAPL): ater AND Screen I reen Length + DN ater AND Water C Vater Column Hei ht is <4 ft, Place P If Present, Do N	Length is <4 feet APL Column Heigh olumn Height and S ght + DNAPL Colu ump at: Total Well Vot Sample	78.9 ht) = Screen Length are < mn Height) = Depth - 2 ft =	ft 112.35 ft btoc 4 ft, ft btoc ft btoc	Volume of Flow Thro Minimum Purge Volu (3 x Flow Through C Ambient PID/FID Rea Wellbore PID/FID Rea	$\begin{array}{llllllllllllllllllllllllllllllllllll$
URGE DATA					ter other participation					
p - J p = -					+02	HAVE THE STA	BILIZATION PAL	RAMETERS BEEN SA	TISFIED? All are units	unless %.
Purge Volume		Depth to	1	<u> </u>	- 0.4		± 370	± 10%	$\pm 10\% \text{ of } \pm 0.2$	± 20
(mL)	Time	Water (ft)	Color	Odor	nH	Temp	Cond.	Turbidity	DO	ORP
	1005	15.95	Clear	Shalet	pn	(Ms/cm	(NTUs)	(mg/l)	(mv)
1000	1110	16.00	1	Jrani	GHG	19.95	1 1 1 1	<u> </u>	222	
2000	1012	15.98			6.40	10.95	1.99	<u> </u>	3.13	- 33
3000	1015	15.98		+	6.15	18.10	1.55	0.0	3. 41	- 101
5000	1120	16.0	1		6.06	18.10	1.57	0.0	2.70	- 108
6250	1125	16.0			8.2	18,19	1.57			- 111
8000	1130	16.0	V		5.71	18.02	1.57	0.5	1.96	- 11 7
art Time: op Time:	1108		Average	Elapsed Time: Purge Rate (mL/min):	22	min	I	Water Qual Dat	ity Meter ID: Heric	19 - 4.52
MPLING DATA mple Date: mple Method:	9-2 Low	2-10 Flow Blodder	<u> </u>	Sample Time: Sample Flow Rate:	113	o mL/min	0/	Analysis: Vo	C, SUOC, Metal	s, mNA
OA Vials, No Head	space 🕅	Initials:	SWG					· · · · · · · · · · · · · · · · · · ·	Contraction - Contraction	
OMMENTS:	MNA: Sulfa	Alkalini te, Doc, J	ty, CD2, C DC, Total &	hlonide, M E Dissolved	Methan Icon. T	e, Nitra otal & D	te, issolved	Ferrous Iron (Filtered	0.2 micron) =	
							~	<u> </u>		

PROJECT NAME: DATE: 9 MONITORING WE	WGK -22-10 ILLID: <u>B</u> :	LTM 3	210 20	PROJECT N WEATHER: SAMPLE ID	UMBER:	Jo17: 80° c 190° c	210.02 lear 1-20-0	910	FIEI	D PERSONNEL:	Steve Graha Kevin Robe	m rts
INITIAL DATA										an a		
Well Diameter: Measured Well Dep Constructed Well De Depth to Water (bto Depth to LNAPL/DI Depth to Top of Scre Screen Length:	th (btoc): epth (btoc): ck): NAPL (btoc): een (btoc):	2'' 77.05 14.75 72.05 5.0	in ft ft ft ft ft	Water Column H If Depth to Top Place Pump at: If Depth to Top of Place Pump at: T If Screen Length DNPL Present	Height (do not of Screen is > Fotal Well Dep of Screen is < fotal Well Dep and/or water	include LNA Depth to Wat pth - 0.5 (Scro Depth to Wat th -)9.5 X W column heigh	PL or DNAPL): ter AND Screen een Length + D1 ter AND Water (Vater Column He at is <4 ft, Place If Present, Do	Length is <4 feet VAPL Column Hei Column Height and ight + DNAPL Co Pump at: Total We Not Sample	62.3 ight) = d Screen Length are olumn Height) = ell Depth - 2 ft =	3 ft 74.55 ft btoc c<4 ft,	Volume of Flow Th Minimum Purge Vo (3 x Flow Through Ambient PID/FID R Wellbore PID/FID F	rough Cell): 1000 mL lume = Cell Volume) 3000 mL eading: 0.0 ppm Reading: 34 ppm
PURGE DATA Pump Type:	QED	Sample	Pro	Bladder	Pump			HAVE THE ST	ABILIZATION P	ARAMETERS REEN SA	TISPIED? All are unit	to
PRO- 1000000000000000000000000000000000000							± 0.2	± 0.2	± 3%	$\pm 10\%$	$\pm 10\% \text{ or } \pm 0.2$	+ 20
Purge Volume (mL)	Time	Depth to Water (ft)	<u> </u>	Color		Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
500	1447 1449 2451	14.75		Clear	Slight	y Sweet	5.79	17.96	0.006	57.2	9.18	-65
3000	1455	14.75				1	5.48	16.63	0.007	46.0	8.85	-93
7000 8000	1505 1510	14.75					5.49	16.67	0.008	<u>43.3</u> <u>42.5</u> <u>42.3</u>	6.35 5.81	- <u>87</u> - <u>8</u> 7
<u> </u>	1515 1520	14.75			-		5.55 5.54	16.58	0.008	47.5	5.14	-90
						feedenaarii aa a	5.58	16.44	0.006	45.8	4.67	-93
Start Time: Stop Time:	1447 1520		the state of the s	Avera	Elar ge Purge Rate	osed Time: (mL/min):	3' 300	3 min mL/min		Water Qual Dat	ity Meter ID: Hor e Calibrated: 9-2	iba - 4-52 2-10
SAMPLING DATA Sample Date: Sample Method:	9-2 600	2-10 Flow B	laddes	;	San Sample H	pple Time: Flow Rate:	<u> 57</u> 30	co ml/min		Analysis: Vo <	, SVOC, Metal	s, MNA
VOA Vials, No Head	space 🕅	Initials:	Si	26								999-9999-999-999-999-999-999-999-999-9
COMMENTS:	MNA: Sulfa	Aikalix te, Doc		, CD2 , Total	Chlor & Diss	ide, M	Aethar Ican	rotal & 7	ate, Dissolved	Ferrous Iron (Filtered Manganes)	0.2 micron) =	
		······								· · · · · · · · · · · · · · · · · · ·		

PROJECT NAME: DATE: MONITORING WI	WGK 1-22- 10 ELL ID:	LTM 3 PA-Mw-	Q 10	PROJECT NUME WEATHER: SAMPLE ID:	BER: J017 80° OU CPA- MW-	210.02 ercast 40- 09	10	FIELD	PERSONNEL:	Steve Grahan Keuin Robe	n n+ s
INITIAL DATA Well Diameter: Measured Well Dep Constructed Well D Depth to Water (bto Depth to LNAPL/D Depth to Top of Scr Screen Length:	oth (btoc): Pepth (btoc): cck): NAPL (btoc): reen (btoc):	2 ¹¹ 121.07 21.55 116.07 5.0	ft ft ft ft ft ft	Water Column Heigh If Depth to Top of Sc Place Pump at: Total If Depth to Top of Sc Place Pump at: Total If Screen Length and DNPL Present	tt (do not include LNA) reen is > Depth to Wat Well Depth - 0.5 (Scre reen is < Depth to Wat Well Depth -)9.5 X W /or water column heigh <u>NO</u>	PL or DNAPL): er AND Screen en Length + DN er AND Water (ater Column He t is <4 ft, Place If Present, Do	Length is <4 feet NAPL Column Heigh Column Height and S eight + DNAPL Colu Pump at; Total Well Not Sample	t) = 1 Screen Length are <- mn Height) = Depth - 2 ft =	2 ft 9.57 ft btoc 4 ft, ft btoc ft btoc	Volume of Flow Thr Minimum Purge Vol (3 x Flow Through Ambient PID/FID Re Wellbore PID/FID R	ough Cel <u>l): 1000 mL</u> ume = Cell Volume) 3000 mL eading: <u>0.0</u> ppm eading: <u>0.0</u> ppm
PURGE DATA Pump Type:	QED	SAmple	Pro	Bladdes Pun	иР		HAVE THE STA	BILIZATION PAI	AMETERS REEN SA	TISFIED? All are unit	c unless %
· · ·						± 0.2	± 0.2	± 3%	$\pm 10\%$	$\pm 10\% \text{ or } \pm 0.2$	± 20
Purge Volume (mL)	Time	Depth to Water (ft)		Color	Odor	pН	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
	0955	21.55	Change and								
1000	0951	21.59	Veress .	WITH DIGGLE TOTICS	PHE 21 211 Juny 2008	6.12	17.86	2.20	0.0	0.62	- 105
2250	1005	71 61	+		<u>├</u>	6.0	16.70	6.30	0.0	0.33	- 110
4000	1010	21.62				5.70	16.67	2.35	0.0	0.02	-118
								· · · · · · · · · · · · · · · · · · ·			
Start Time: Stop Time:	1010	-		Average Pu	Elapsed Time: urge Rate (mL/min);	15	5 min 50		Water Qua Da	lity Meter ID: Hor i te Calibrated: 9-2	69 - U-52 2-10
SAMPLING DATA Sample Date: Sample Method: VOA Vials, No Hea COMMENTS:	4 <u><u></u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u>	22-10 Flow 3 Initials: AIKaliv	indde s si	$\frac{1}{100210}$	Sample Time: Sample Flow Rate:	101 250 <u>Ae-thar</u>	ne, Nitre	Q/	Analysis: UO A/QC Samples: Ferrous Iron (Filtered	C, SUOC, Meto None 10.2 micron) =	NIS, MNA
			,	<u></u>	V(>>0/08d		I DTAL & L	ASSOIVEd	vianganes		

PROJECT NAME DATE: MONITORING W	: W6K -22-10 /ELL ID: CF	LTM A-MW-	3Q10 PROJECT NU WEATHER: SAMPLE ID:	JMBER: 50172 85° CPA- MW	10.02 Overcast -3D-09	10	FIELD	PERSONNEL:	Steve Graham Kesin Rober	n ts
INITIAL DATA		Maritice - 1 - 2014 - 2014 - 2014 - 2014 - 2014 - 2014 - 2014 - 2014 - 2014 - 2014 - 2014 - 2014 - 2014 - 2014								
Well Diameter: Measured Well De Constructed Well D Depth to Water (bt Depth to LNAPL/I Depth to Top of Sc Screen Length: PLIRGE DATA	pth (btoc): Depth (btoc): ock): DNAPL (btoc): rreen (btoc):	2" 113.00 9.43 108.00 \$.0	_in Water Column He ft If Depth to Top of ft Place Pump at: T ft If Depth to Top of ft Place Pump at: To ft If Screen Length a ft DNPL Present	eight (do not include LNA f Screen is > Depth to Wa otal Well Depth - 0.5 (Scr f Screen is < Depth to Wa otal Well Depth -)9.5 X W and/or water column heigh NO	PL or DNAPL): ter AND Screen een Length + D ter AND Water Vater Column H at is <4 ft, Place If Present, Do	: I Length is <4 feet NAPL Column Heig Column Height and eight + DNAPL Coh Pump at: Total Wel Not Sample	lo3.5 ht) = l Screen Length are <	ft 10.5 ft btoc 4 ft,ft btoc ft btoc	Volume of Flow The Minimum Purge Vo (3 x Flow Through Ambient PID/FID R Wellbore PID/FID R	rough Cell): 1000 mL hume = Cell Volume) 3000 mL eading: 0.0 ppm teading: 0.0 ppm
Pump Type:	QED	Samole	Pro Bladder	Pump	The last second	LIANTE THEF.	BUITIONDAL			
					± 0.2	+0.2	BILIZATION PAL	CAMETERS BEEN SA	TISFIED? All are uni	ts unless %
Purge Volume	1	Depth to			1			± 10%	$\pm 10\% \text{ or } \pm 0.2$	± 20
(mL)	Time	Water (ft)	Color	Odor		1 emp	Cond.	Turbidity	DO	ORP
~	1342	9.43			<u>p11</u>		MIS/CIII	(NTUs)	(mg/l)	(mv)
1000	1345	9.42	Clear	Sinter	6 14	2129	1.60			
2000	1350	9.42	1	Jowed	5.97	10.40	1.00	0.0	0.97	-71
3000	1355	9.42	1		1505	19.17	1.11	0.0	0.30	~102
4500	1400	9.42	1		5.70	19.02	1 - 1 - 0	0.0	0.17	-107
5500	1405	9.42			5.64	19.06	1.78	1.9	0.12	
7000	1410	9.42	1	V	5.56	19.39	1.79	<u> </u>	0. VY	
Start Time: Stop Time:	1342		Average	Elapsed Time:	20	8 min		Water Quali Date	ity Meter ID: Heri e Calibrated: 9-1	09 - U-52 22-10
SAMPLING DAT.	A				and the first of the second			*****		
Sample Date: Sample Method: VOA Vials, No Hea	<u> </u>	ZZ-10 Flow blo	dder Sw6	Sample Time: Sample Flow Rate:	2	1410 50 mL/min	QA	Analysis: Vor	suoc, meta None	ls, mNA
COMMENTS:	MNA: Sulfa	Alkalin te, Doc,	TOC, Total	Chloride, M & Dissolved	Aethar Front	ne, Nitro Total & T	ute, assolved	Ferrous Iron (Filtered Manganese	0.2 micron) =	
						= 11.6×19				

.

PROJECT NAME DATE:		LTM	3010	PROJECT N WEATHER:	UMBER: Jo17	210.02 :lear		FIELD	PERSONNEL:	Steve Graha Kevin Rob	erts
MONTOKING W		<u>- ww-</u>	<u> </u>	SAMPLE ID	CPR-mw-	20- 09	10				·····
INITIAT DATA		and the second second second second second			n de la subre d	the many sector of the sector		#91			
UNITAL DATA		- ³³									
Well Diameter:		la	ⁱⁿ	Water Column F	leight (do not include LNAF	L or DNAPL):		97.04	ft	Volume of Flow Thro	ugh Cell): iano mL
Constructed Well I	pth (btoc): Depth (btoc):	1011 / /	_ft	If Depth to Top o	of Screen is > Depth to Wate	er AND Screen	Length is <4 feet			Minimum Purge Volu	me =
Depth to Water (bt	tock):	761	n	If Depth to Top	fotal Well Depth - 0.5 (Scre	en Length + DI	VAPL Column Heig	ht) =	02.15 ft btoc	(3 x Flow Through (Cell Volume) 3000 mL
Depth to LNAPL/I	DNAPL (btoc):		-n ft	Place Pump at: T	otal Well Denth - 19 5 X W	ater Column He	J_{onumn} Height and J_{onu}	Screen Length are <	<4 ft,	Ambient PID/FID Rea	ading: <u>0.0</u> ppm
Depth to Top of Sc	reen (btoc):	99.65	ft	If Screen Length	and/or water column height	is <4 ft, Place	Pump at: Total Well	Denth - 2 ft =	ft btoc	wellbore PID/FID Re	ading: 0.0 ppm
Screen Length:		5.0	ft	DNPL Present	No	If Present, Do	Not Sample	······································			
PURGE DATA	QED	Samle	Pro	Ridler	Proceso	Acres and the					
p 1)pe.				Q1 IN PRES	<u>ivmp</u>	+07	HAVE THE STA	BILIZATION PA	RAMETERS BEEN SA	TISFIED? All are units	unless %
Putge Volume	1	Dowth to	1				± 0.2	± 3%	± 10%	$\pm 10\% \text{ or } \pm 0.2$	± 20
(mL)	Time	Water (ft)		Color	01		Temp	Cond.	Turbidity	DO	ORP
(m2)	0740	water (It)	-	COIOI	Udor	pH	(°C)	Ms/cm	(NTUs)	(mg/l)	(mv)
1000	10743	7.5		1	Slight (Sweet)		10 00	1			
2000	0745	7.5		<u> </u>		3.63	17.04	1.04	82.9	1.26	27
YSOD	0750	7.5				3.35 5 5 U	18.17	1.21	. 49. 5	0.83	-6
6500	0755	7.5	+			5.59	10. 7	13/-	13.6	0.35	- 65
8500	0800	7.5		-V		5.32	18.64).37	4.9	0.27	~ 0/
									<u><u><u></u></u><u></u><u></u><u></u><u></u><u></u><u></u>.</u>	0,	
				·							
·····			•								*****
		<u> </u>									
		4 <u></u>							:	<u> </u>	
Start Time:	0740	_			Elapsed Time:	21	o min		Water Oual	ity Motor ID: U. 1	
Stop Time:	0800			Averag	ge Purge Rate (mL/min):	40	0		Water Quar Dat	re Calibrated: 7	23-10
SAMPLING DAT	۰. ۸									o canoratou.	
Samula Data:	A A	72.10									
Sample Date:	<u> </u>	<u>Class of</u>	11 6		Sample Time:		0800		Analysis: Vo	C. SUOC. Metal	IS MNA
Sample Method.	<u></u>	FIGW BING	1967		Sample Flow Rate:	40	0 ml/min	Q,	A/QC Samples: And	alytical Dupl	icate
VOA Vials, No Hea	adspace 🔀	Initials		SWG							
COMMENTS:	MNA	Alkali	rtin	4, CD2+	Chloride, M	rethar	ie. Nitra	ite.	Ferrous Iron (Filtered	$0.2 \operatorname{micron}) =$	
	Sulta	TE, DOC	170	C, Total	& Dissolved	Iron,	Total & I	Assolved	Managnesi	0	
		-							·		
											· · · · · · · · · · · · · · · · · · ·

PROJECT NAME DATE: 9 MONITORING W	WGK 23-10 ELL ID:	LTM 3	Q IO PROJECT NUMI WEATHER: VEATHER: ID SAMPLE ID:	BER: Jo17 85° CPA- Mu	210.02 Clear 1-10-00	710	FIELD	PERSONNEL:	teve Graham evin Roberts	
INITIAL DATA Well Diameter: Measured Well Dep Constructed Well D Depth to Water (bto Depth to LNAPL/D Depth to Top of Sci Screen Length: PURGE DATA	oth (btoc): Depth (btoc): Deck): NAPL (btoc):	2" 70.82 7.20 65.82 5.0	in Water Column Heigh ft If Depth to Top of Sc ft Place Pump at: Total ft If Depth to Top of Sc ft Place Pump at: Total ft If Screen Length and ft DNPL Present	nt (do not include LNA reen is > Depth to Wa Well Depth - 0.5 (Scr reen is < Depth to Wa Well Depth -)9.5 X V /or water column heig NO	APL or DNAPL): tter AND Screen reen Length + DI ter AND Water Vater Column He ht is <4 ft, Place If Present, Do	Length is <4 feet NAPL Column Heig Column Height and eight + DNAPL Col Pump at: Total We Not Sample	63. 62 $ght) = 6$ $I Screen Length are < humn Height) = 11 Depth - 2 ft = 11 D$	ft 28-32 ft btoc (4 ft, ft btoc ft btoc	Volume of Flow Thro Minimum Purge Voh (3 x Flow Through (Ambient PID/FID Re Wellbore PID/FID Re	bugh Cel <u>l): 1000</u> mL ime = Cell Volume) 3000 mL ading: 0.0 ppm ppm
Pump Type:	QED	Sample Pr	o Bladdes Pu	mp		HAVE THE ST.	ABILIZATION PA	RAMETERS BEEN SA	TISFIED? All are unit	nuless %
	1				± 0.2	± 0.2	± 3%	± 10%	$\pm 10\% \text{ or } \pm 0.2$	± 20
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	рН	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
500 1000 2000	0855 0900 0905	7.25	Silty - d. Brown	yes	6.11 7.83 7.95	23.09 18.75 18.77	1.85 2.66 2.48	741 682 158	1.98 0.04	-133
3500 5000 5500 6000	0910	7.25 7.25 7.25 7.25			8.01 8.01 8.02	18.57 18.61 18.65	2.44 2.38 2.37	74.8 35.5 22.1	0.00 0.00 0.00	-7/ -68 -66
					8.00	18.49	2.39		0.00	- 6 4
Start Time: Stop Time:	0850	-	Average Pu	Elapsed Time: urge Rate (mL/min):	3	o min		Water Qual Da	ity Meter ID: Horib te Calibrated:	9 - U-52 23-10
SAMPLING DATA Sample Date: Sample Method:	9-2 Low	3-10 Flow bladd	<u>er</u>	Sample Time: Sample Flow Rate:	90 05	20 0 ml/min	0 Q/	Analysis: Voc	, SVOC, Metal	MNA
VOA Vials, No Hea	Ispace X MNA: SWFa	Initials: <u>Aikalin</u> te, Doc,	SW6 ity, CD2, Ct TOC, Total &	Maride, M Dissolved	Methar Iron,	10, Nith	ate; Zissolved	Ferrous Iron (Filtered	0.2 micron) =	

.

PROJECT NAME	WGK	LTM 30	PROJECT NUMB	ER: <u>Join</u>	210.02		FIELD	PERSONNEL:	Steve Graham	8
DATE:	9-22-10	A _ MI.1 - 1	WEATHER:	<u> </u>	overcast	-			Kevin Robert	5
	LEL D. <u>v</u> a	<u></u>	SAMPLE ID:	<u> </u>	2-15-091	<u>o</u>				
INITIAL DATA	an a	annin an an an ann ann an an an an an an an		an an air an					-	
Well Diameter: Measured Well De Constructed Well I Depth to Water (bt Depth to LNAPL/I Depth to Top of Sc Screen Length:	pth (btoc): Depth (btoc): Dock): DNAPL (btoc): reen (btoc):	2 ^{**} in - ft 27.5 ft 11.62 ft - ft 22.5 ft to ft	Water Column Height If Depth to Top of Scr Place Pump at: Total If Depth to Top of Scr Place Pump at: Total V If Screen Length and/o DNPL Present	t (do not include LNA een is > Depth to Wa Well Depth - 0.5 (Scr een is < Depth to Wa Well Depth -)9.5 X W or water column heig NO	APL or DNAPL): ater AND Screen reen Length + DN ater AND Water (Vater Column He ht is <4 ft, Place I If Present, Do	Length is <4 feet IAPL Column Heigl Column Height and S ight + DNAPL Colu Pump at: Total Well Not Sample	t5.89 ht) = Screen Length are <br mn Height) = Depth - 2 ft =	ft 25.0 ft btoc 4 ft, ft btoc ft btoc	Volume of Flow Thro Minimum Purge Volu (3 x Flow Through (Ambient PID/FID Re Wellbore PID/FID Re	ugh Cell): 1000 mL me = Cell Volume) 3000 mL ading: 0.0 ppm ading: 102 ppm
PURGE DATA Pump Type:	Pegas	us Peris	toltic Pump			HAVE THE STA	RILIZATION PAI	AMETERS REEN SA	TISPIED? All are units	unlass 0/
x 52				******	± 0.2	± 0.2	± 3%	$\pm 10\%$	$\pm 10\%$ or ± 0.2	± 20
Purge Volume	Time	Depth to				Temp	Cond.	Turbidity	DO	ORP
(IIII.)	1 lime	water (ft)	Color	Odor	pH	(°C)	Ms/cm	(NTUs)	(mg/l)	(mv)
1000	1612	11.6		Slight	1 (3 3	70.110		1		
2000	167.0	11.6			6.17	10 74	(*33		0.27	<u> </u>
2000	1625	11-6			Gau	19.19	1.76	19.7	0.0%	- 127
5000	1630	11.6			5.99	18.55		776	0.00	- 110
				······································					V.V.	• 8 · F
						· · ·				

·····						ĺ				
Start Time: Stop Time:	1612		Average Pu	Elapsed Time: _ rge Rate (mL/min): _	18 30	min		Water Qua Da	lity Meter ID: Horth te Calibrated: 9-2	- U-52 .2-10
SAMPLING DAT	Δ	, , , , , , , , , , , , , , , , , , ,						We wanted to be a series of the series of	an a	
Sample Date: Sample Method:	9-22- 	lo Now Perist	altric	Sample Time: Sample Flow Rate:	16 30	30 0 ml/min	Q/	Analysis: Uo o VQC Samples:	<u>c, suoc, meta</u> None	IS, MNA
VOA Vials, No Hea	idspace 🔀	Initials:	526							
COMMENTS:	MNA: Sulfat	Alkalini e, Doc,	ty, CD2, Ct TDC, Total &	Dissolved	Methar Iron	ne. Nitro Total & T	ite, Assolved	Ferrous Iron (Filtered Manganes	1 0.2 micron) =	
		~	t			- Audio and a second		·····	······	
				·····		·····				4

PROJECT NAME: DATE: 9 MONITORING WI	WGK 23-10 ELL ID: <u>BS</u>	LTM 30 9 · MW · 15	PROJECT NUN WEATHER: SAMPLE ID:	IBER: Joi72 85° C BSA - MW-	10.02 lear 15-0910	>	FIELD	PERSONNEL: 5	teve Graham Kevin Robert	1
INITIAL DATA Well Diameter: Measured Well Dep Constructed Well D Depth to Water (bto Depth to LNAPL/D Depth to Top of Scr Screen Length:	2 bth (btoc): lepth (btoc): cck): NAPL (btoc): een (btoc): 5	27.5 11.6 22.5	in Water Column Heig ft If Depth to Top of S ft Place Pump at: Tot ft If Depth to Top of S ft Place Pump at: Tota ft If Screen Length an ft DNPL Present	th (do not include LNA) creen is > Depth to Wat al Well Depth - 0.5 (Screen creen is < Depth to Wat l Well Depth -)9.5 X W d/or water column heigh NO	PL or DNAPL): er AND Screen I een Length + DN er AND Water C ater Column Hei t is <4 ft, Place F If Present, Do I	Length is <4 feet APL Column Heig column Height and ght + DNAPL Coh 'ump at: Total Well Not Sample	IS.9 ht) = Screen Length are < umm Height) = I Depth - 2 ft =	ft 25.0 ft btoc 4 ft, ft btoc ft btoc ft btoc	Volume of Flow Thro Minimum Purge Voh (3 x Flow Through Ambient PID/FID Re Wellbore PID/FID Re	bugh Cell): 1000 mL ame = Cell Volume) 3000 mL ading: ppm eading: ppm
PURGE DATA Pump Type:	Peuce	ius Per	istaltic Pur	P	The last of the second	IF & STRUTTER OFF	DIL 17 LTION DU			
	J				±02	+0.2	$\frac{\text{DILIZATION PAT}}{+ 3\%}$	+ 10%	$\frac{11SF1ED?}{10\%}$ All are unit	s unless %
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	Ha	Temp	Cond. Ms/cm	Turbidity	DO (mg/l)	± 20 ORP
	1022	11.6	Clear	Slight		(0)	1436/0111	(11105)	(ing/1)	(mv)
500	1022	11.6	1	1	1					
1000	1024	11.6								
1800	1027	11.6			7.28	19.82	1.82	1.6	0.51	U
3500	1030	<u> </u>			7.04	18.55	1.93	1.2	0.09	- 88
5500	1035	11-6		<u> </u>	6.55	18.43	2.01	0.0	0.00	- 122
7000	1040				6.30	18.58	2.00	0.0	0.00	~ 131
1000	10 45	<u> </u>	<u>.</u>		6.13	18.43	2.01	0.0	0.00	- 137
Start Time: Stop Time:	1022		Average	Elapsed Time:	23 25 400	min		Water Qual Da	lity Meter ID: Hor: be te Calibrated: 9-2	<u>u-52</u> 3-10
SAMPLING DATA										
Sample Date: Sample Method:	9-23 Low Fl	-10 ow Perist	altic	Sample Time: Sample Flow Rate:	104	15 ML/mig	QA	Analysis: V A/QC Samples: A	oc Vone	
VOA Vials, No Head	dspace 🔀	Initials:	SWG							
COMMENTS:	MANA	Atkaction	it cong	Haride M	Acthan	e thin	der	Ferrous Iron (Filtered	10.2 micron) =	
				- 213Solver	Aron;	etal & T	2550 de	Hanganes	<u>e</u>	
	Re	- Sample	ed for	VOC only	7	······				

INITIAL DATA			-					an a		
Well Diameter: Measured Well Dep Constructed Well D Depth to Water (bto Depth to LNAPL/D Depth to Top of Scr Screen Length: PURGE DATA	pth (btoc): Depth (btoc): Dock): NAPL (htoc): reen (btoc):	2 in fill 14.75 ft 18.5 ft 19.5 ft 109.75 ft 5.0 ft	Water Column He If Depth to Top of Place Pump at: To If Depth to Top of Place Pump at: To If Screen Length a DNPL Present	ight (do not include LNA Screen is > Depth to Wat otal Well Depth - 0.5 (Screen Screen is < Depth to Wat tal Well Depth -)9.5 X W nd/or water column heigh	PL or DNAPL): ter AND Screen L een Length + DN, ter AND Water Co Vater Column Height is <4 ft, Place P If Present, Do N	ength is <4 feet APL Column Heigl olumn Height and ; ght + DNAPL Colu ump at: Total Well lot Sample	96. ht) = 1 Screen Length are < imm Height) = Depth - 2 ft =	2.5 ft 12.25 ft btoc 4 ft, ft btoc ft btoc	Volume of Flow Thro Minimum Purge Volu (3 x Flow Through C Ambient PID/FID Rea Wellbore PID/FID Re	ugh Cell): 1000 n me = Cell Volume) 3000 n ading: 0.0 p ading: 0.0 p
Pump Type:	GED SAI	nple Pro (Bladder Kump			HAVE THE STA	BILIZATION PAI	RAMETERS BEEN SA	TISFIED? All are units	unless %.
	1	r			± 0.2	± 0.2	± 3%	±10%	$\pm 10\% \text{ or } \pm 0.2$	± 20
Purge Volume		Depth to				Temp	Cond.	Turbidity	DO	ORP
<u>(mL)</u>	1 ime	Water (ft)	Color	Odor	pH	(°C)	Ms/cm	(NTUs)	(mg/l)	(mv)
	1147	13.05	<u>Cleaf</u>	None	7.07	17.3	3.84	9.7	6.14	- 85
1500	1150	13.05			6.69	16.61	3.84	5.8	5.36	- 96
2500	1152	13.05			6.49	16.47	3.82	3.9	V.72	- qQ
3000	1157	13.05			6.23	16.51	3.79	1.5	3.2.7	
3500	1200	13.05			6.15	16.71	3.78	0.9	2.97	- 0/
4000	1210	13.05			6.04	16,56	2.70	<u>Λ</u> Λ	6.16	- 11
5000	1215	13.05			6.01	16.55	2.79	0.0	175	- 14
6000	1220	13.05		1	6.02	16.70	2.70	<u> </u>	<u> </u>	- 7 6
7000	1225	13.05	<u> </u>		5.98	16.71	3.80	0.0	0.79	- 7.2
tart Time:	1147			Elapsed Time:	38	min		Water Quali	ty Meter ID: Horice	u-52
top mile.			Average	Purge Rate (mL/min):	200			Dat	e Calibrated: 9-2	1-10
AMPLING DATA ample Date: ample Method:	9-21 10w F	-10 Tow Bladde	26	Sample Time: Sample Flow Rate:	200	225 ML/min	Q/	Analysis: VOC	, SUOC, Meta	ls, MNA
'OA Vials, No Hea	dspace	Initials:	SW6					· · · ································		
OMMENTS:	MNA:	Alkalini	14,0210	hloride, M	Nethan	e, Nitro	ster	Ferrous Iron (Filtered	0.2 micron) =	

<u>APPENDIX B</u>

CHAINS-OF-CUSTODY

Test	Arr			AND CH	AIN OF CUSTODY	REC	ORE		51 51 Sa	stAmer 02 LaR vannah	rica Sa oche A , GA 31	vannah venue 1404			,	\ F	Vebsit Phone: Fax: (9	e: www (912) 12) 35:	/.testamer 354-7858 2-0165	ricainc.co) M
THE LEADE	ER IN ENVIR	ONMENTAL	TESTING	3	310 LTM GW	Sa	мP	les.	◯ Alt	ernate I	Laborat	tory Nar	ne/Loca	ation		F	Phone: Fax:				
ROJECT REFER	RENCE		PROJECT NO	. LTM Monitoria	CON PROJECT LOCATION		MATI	RIX		:	-	RE) ANALY	SIS		-		PAGE		OF
AL (LAB) PROJE <u>C.M. R.</u> <u>CLIENT (SITE) PN</u> <u>CM PINE</u> <u>CLIENT NAME</u> <u>SOLUTCA</u> <u>CLIENT ADDRESS</u>	ict manager nold: 1 ald: 5		P.O. NUMBER 45038 CLIENT PHON 314-674 CLIENT E-MAI	169001 IE -3312- IL	CONTRACT NO. CLIENT FAX 314-674-8868) OR GRAB (G) INDICATE	ER) SOLID		VCC 82100	5VOC 8270C	TOLET FE /MN 6010B	AIRA/CO2, 310-1	Chloride 325.2	Methant RSK 175	Nitale \$3.2	TOL 415.1	Diss. Felmin Colog	1994 790	STANDAI DELIVER DAT EXPEDIT DELIVEF (SURCH, DAT	E DUE RD REPOI TED REPO RY ARGE) E DUE	
OMPANY CONT	RACTING THIS	WORK (if appli	<u>Dr. 6ti L</u> icable)	<u>.0015 .40</u>	> 63141	SITE (C)	US (WAT		si tici	None	Alos	and and	hone	hone	norr 12594	WE	HUDA	HC	NUMBER PER SHI	OF COOL	ERS SUBMI
SAMP DATE	TIME		SAMPL	E IDENTIFICA	TION	COMPO	SOLID (AIR		11-0-0	NUI	l MBER OI	F CONTA	NINERS	SUBMIT	TED	<i>لمو</i>			REMA	RKS
09/21/10	1225	CPA	- M(1) 5	5D-09	10	Ġ	X		3	2	l		1	3	à	1					
912110	1225	CPA	- MW 5	D - F(0	0.2)-0910	G	X										1	ĺ	field	filter	ed
#121/10	1558	BSA	-MW5	D-09	10	G	χ		3	2	1	((3	2	(
5/21/10	1558	BSA	- MWS	50 - F(0.2)-0910	G	X									ļ	1	i	field	filter	e2.
9121/10	1558	BSA	- MWS	D -0	910 - MS	G	X		3	2								ļ			·
12/11/10	155%	BS A	- MWE	5D - 09	10 - MSD	6	X_		3	2											
3		TRIP	BLANK	#]			<u>x</u>		2												
				-																	
LINQUISHED B	Y: (SIGNATURE)		DATE 9/2/10	TIME 1800	RELINQUISHED BY: (SIG	NATUR	E)		<u> </u>	DATE		TIME		RELING	QUISHE	D BY: (si	GNATURI	E)		NTE	TIME
CEIVED BY: (SIG	INATURE)		DATE	TIME	RECEIVED BY: (SIGNATUR	E)				DATE		TIME		RECEI	/ED BY:	(SIGNATU	IRE)		DA	TE	TIME
CEIVED FOR LA	ABORATORY BY			TIME		LABC	RATC	RY US			l		47051/1								
INATURE)	0		9 Jach	FIVIE	YES	SEA	L NO.	ſ	LOG N	NAH D. Lo C	10-1	LABOR	ATORY F	HEMAR	IS T	emí	$\sum_{i=1}^{n}$	× 1			
					A					Seria	al Nur	mber	03	24	22						
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ToctAn		IN OF CUSTODY F	RECORD	2	TestAmerica SavannahWebsite: www.testamericainc.com5102 LaRoche AvenuePhone: (912) 354-7858Savannah, GA 31404Fax: (912) 352-0165					.com											
					Alternate Laboratory Name/Location																
THE LEADER IN ENVI	RONMENTAL TESTING											P F	'hone: ax:								
PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION	MATE	AIX				RE	QUIRED	ANALY	SIS		······		PAGE	OF					
TAL (LAB) PROJECT MANAGER	RIO P.O. NUMBER	CONTRACT NO.		'E T			2						2		STANDARD RE	PORT , _					
GM Rinchdi	4503869001		ATE	L I		0	210	10.	27	122	3.6	_	60	spanning?	DELIVERY	Ŕ					
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX	NDIC		00	2	2	12)	325	X	33	12	MM	15	DATE DUE						
CLIENT NAME	CLIENT E-MAIL		3(0)		8	82	10	602	22	R	X	4	Fe/	5	EXPEDITED RE	PORT					
Solutia, WC	gmind 5010	tia-com	D GRAI	0 01	12	2	- Tra	Kal	125	222	N.	20	55	00	(SURCHARGE)						
CLIENT ADDRESS	Color Chloris M	0 63141) OR ISOL	0	3	50%	101	91	55	記る	<u> </u>	F	á	- Card	DATE DUE						
COMPANY CONTRACTING TH	S WORK (if applicable)		OSITE (C OUS (WA	OUEOUS	HCI	None	17.003	W. a.C.	Nont	hde	1294	VÆ	iturz	IFCL	NUMBER OF CO PER SHIPMEN	DOLERS SUBMITTE					
SAMPLE DATE THAE	SAMPLE IDENTIFICATION			AIR	NUMBER OF CONTAINERS SUBMITTED							RE	MARKS								
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THE LEADER IN ENVIRONMENTAL TESTING												Phone: Fax:				
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<u>APPENDIX C</u>

QUALITY ASSURANCE REPORT

THIRD 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. J017210.02

December 17, 2010

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

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11.0	CALIBRATION
12.0	COMPOUND IDENTIFICATION
13.0	OTHER PROBLEMS/DOCUMENTATION

THIRD 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 September of 2010 at the Solutia W.G. Krummrich plant as part of the 3rd 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), semi-volatile organic compounds (SVOCs), 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 four random groundwater samples for Level IV data validation (CPA-MW-5D-0910, CPA-MW-4D-0910, BSA-MW-5D-0910 and BSA-MW-4D-0910.) 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

Solutia Inc. December 17, 2010 Page 2

- 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:

Lab Qualifier	Definition
U	Indicates the analyte was analyzed for but not detected.
F	MS or MSD exceeds the control limits
F	RPD of the MS exceeds the control limits
Х	Surrogate is outside control limits
D	Surrogate or matrix spike recoveries were not obtained because the extract
	was diluted for analysis; also compounds analyzed at a dilution will be
	flagged with a D.
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 1 – Laboratory Data Qualifiers

Solutia Inc. December 17, 2010 Page 3

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.
Ν	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.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Table 2 - Geotechnology (MJW Corporation) Data Qualifiers

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 96.2 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

Solutia Inc. December 17, 2010 Page 4

- 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 the two of the eight coolers were received by the laboratory at temperatures within the $4^{\circ}C \pm 2^{\circ}C$ criteria. Six of the eight coolers were received by the laboratory at temperatures outside the $4^{\circ}C \pm 2^{\circ}C$ criteria. Samples received were in good condition; therefore, no qualification of data was required.

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.

Solutia Inc. December 17, 2010 Page 5

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

Solutia Inc. December 17, 2010 Page 6

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

Samples were diluted due to abundance of target analytes. The diluted sample results for VOCs were reported at the lowest possible reporting limit.

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.

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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 initially rejected because DOC results are greater than the TOC results for the samples, which is not possible. The validator could not establish whether the error occurred in the field filtering or in the laboratory analyses. However, after discussion with Geotechnology regarding the identified issues with the field filters, the MJW Corporation revised their data validation findings with respect to the TOC results. The TOC results are no longer considered as rejected. The sample results qualified as rejected are summarized in the table below.

Sample ID	Parameter	Analyte	Qualification
CPA-MW5D-0910	Inorganics	DOC	R
BSA-MW5D-0910	Inorganics	DOC	R
BSA-MW4D-0910	Inorganics	DOC	R
CPA-MW4D-0910	Inorganics	DOC	R
BSA-MW3D-0910	Inorganics	DOC	R
CPA-MW3D-0910	Inorganics	DOC	R
BSA-MW2D-0910	Inorganics	DOC	R
BSA-MW1S-0910	Inorganics	DOC	R
CPA-MW2D-0910	Inorganics	DOC	R
CPA-MW1D-0910	Inorganics	DOC	R

APPENDIX D

GROUNDWATER ANALYTICAL RESULTS (WITH DATA REVIEW SHEETS)

SDG KPS060

Results of Samples from Monitoring Wells:

BSA-MW-1S BSA-MW-2D BSA-MW-3D BSA-MW-4D BSA-MW-5D CPA-MW-1D CPA-MW-2D CPA-MW-3D CPA-MW-4D CPA-MW-5D



THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 680-61455-1 SDG Number: KPS060 Job Description: WGK LTM GW 3Q10 - SEP 2010

> For: Solutia Inc. 575 Maryville Centre Dr. Saint Louis, MO 63141 Attention: Mr. Jerry Rinaldi

Lideja gilicia

Approved for release. Lidya Gulizia Project Manager I 11/1/2010 1:56 PM

Lidya Gulizia Project Manager I lidya.gulizia@testamericainc.com 11/01/2010 Revision: 1

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 Savannah5102 LaRoche Avenue, Savannah, GA 31404Tel (912) 354-7858Fax (912) 352-0165www.testamericainc.com





Job Narrative 680-61455-1 / SDG KPS060 (Revised 11/1/10)

Receipt

Method(s) 8260B: The following sample(s) was received with headspace in the sample vial: BSA-MW1S-0910 (680-61495-12), BSA-MW2D-0910 (680-61495-10), BSA-MW3D-0910 (680-61495-5), CPA-MW3D-0910 (680-61495-8), CPA-MW4D-0910 (680-61495-3). All of the sample vials have headspace in them.

Method(s) 8260B: The following sample(s) was received with headspace in the sample vial: CPA-MW2D-0910 (680-61543-1), CPA-MW2D-0910-AD (680-61543-3). Two sample vials from each of the samples have headspace in them.

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

GC/MS VOA

No analytical omquality issues were noted.

GC/MS Semi VOA

Method(s) 8270C: The following sample(s) contained one acid and/or one base surrogate outside acceptance limits: CPA-MW4D-0910 (680-61495-3) and the matrix spike sample lab ID 680-61543-1 MS. The laboratory's SOP allows one acid surrogate and/or one base surrogate to be outside acceptance limits; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

Method(s) 8270C: The matrix spike duplicate (MSD) precision for batch 180934 was outside control limits. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision met acceptance ciriteria.

Method(s) 8270C: A full list spike was utilized for this method. Due to the large number of spiked analytes, there is a high probability that one or more analytes will recover outside acceptance limits. The laboratory's SOP allows for 4 analytes to recover outside criteria for this method when a full list spike is utilized. The MS associated with batch 181388 had 1 analytes outside control limits; therefore, re-extraction/re-ánalysis was not performed. These results have been reported and qualified.

Method(s) 8270C: The following sample(s) was diluted due to the nature of the sample matrix and abundance of target analytes: CPA-MW1D-0910 (680-61543-4). As such, surrogate recoveries are not reported, and elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

GC VOA

No analytical or quality issues were noted.

Metals

Method(s) 6010B: Due to the high concentration of iron and manganese, the matrix spike / matrix spike duplicate (MS/MSD) for batch 680-182835 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method(s) 6010B: Due to the high concentration of iron, the matrix spike / matrix spike duplicate (MS/MSD) for batch 680-182836 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.

General Chemistry

Method(s) 415.1, 9060: Samples received for TOC analysis were insufficiently preserved. Additional acid was added and samples were properly preserved in the lab.

Method(s) 415.1: The Dissolved Organic Carbon (DOC) results were greater than the associated Total Organic Carbon (TOC) results in the project samples.

Method(s) 325.2, SM 4500 CI- E: The matrix spike / matrix spike duplicate (MS/MSD) recoveries associated with batch 182871 were outside control limits: (680-62053-21 MS), (680-62053-21 MSD). Matrix interference is suspected.

Method(s) 353.2: The following sample(s) was diluted due to appearance or color: CPA-MW1D-0910 (680-61543-4) Elevated reporting limits (RL) are provided.

No other analytical or quality issues were noted.

Comments

The report was revised on November 1, 2010 to include the chain-of-custody (COC) record for samples collected on 9/23/10 and received on 9/24/10 under laboratory job ID 680-61543.

No additional comments.



J. Joh

METHOD SUMMARY

Client: Solutia Inc.

Job Number: 680-61455-1 Sdg Number: KPS060

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL SAV	SW846 8260B	
Purge and Trap	TAL SAV		SW846 5030B
Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	TAL SAV	SW846 8270C	
Liquid-Liquid Extraction (Continuous)	TAL SAV		SW846 3520C
Dissolved Gases (GC)	TAL SAV	RSK RSK-175	
Metals (ICP)	TAL SAV	SW846 6010B	
Sample Filtration, Field	TAL SAV		FIELD FLTRD
Preparation, Total Recoverable or Dissolved Metals	TAL SAV		SW846 3005A
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	
TOC	TAL SAV	MCAWW 415.1	
Sample Filtration, Field	TAL SAV		FIELD FLTRD

Lab References:

TAL SAV = TestAmerica Savannah

Method References:

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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.



METHOD / ANALYST SUMMARY

Client: Solutia Inc.

Method	Analyst	Analyst ID
SW846 8260B	Lanier, Carolyn	CL
SW846 8270C	Haynes, Carion	CRH
RSK RSK-175	Moncrief, Amy J	AJM
SW846 6010B	Bland, Brian	ВСВ
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	Holmes, Tinita	ТН

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Client: Solutia Inc.

Job Number: 680-61455-1 Sdg Number: KPS060

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-61455-1	CPA-MW5D-0910	Water	09/21/2010 1225	09/22/2010 0937
680-61455-2	CPA-MW5D-F(0.2)-0910	Water	09/21/2010 1225	09/22/2010 0937
680-61455-3	BSA-MW5D-0910	Water	09/21/2010 1558	09/22/2010 0937
680-61455-3MS	BSA-MW5D-0910	Water	09/21/2010 1558	09/22/2010 0937
680-61455-3MSD	BSA-MW5D-0910	Water	09/21/2010 1558	09/22/2010 0937
680-61455-4	BSA-MW5D-F(0.2)-0910	Water	09/21/2010 1558	09/22/2010 0937
680-61455-5	Trip Blank #1	Water	09/21/2010 0000	09/22/2010 0937
680-61495-1	BSA-MW4D-0910	Water	09/22/2010 0815	09/23/2010 0917
680-61495-2	BSA-MW4D-F(0.2)-0910	Water	09/22/2010 0815	09/23/2010 0917
680-61495-3	CPA-MW4D-0910	Water	09/22/2010 1010	09/23/2010 0917
680-61495-4	CPA-MW4D-F(0.2)-0910	Water	09/22/2010 1010	09/23/2010 0917
680-61495-5	BSA-MW3D-0910	Water	09/22/2010 1130	09/23/2010 0917
680-61495-6	BSA-MW3D-F(0.2)-0910	Water	09/22/2010 1130	09/23/2010 0917
680-61495-7EB	BSA-MW3D-0910-EB	Water	09/22/2010 1200	09/23/2010 0917
680-61495-8	CPA-MW3D-0910	Water	09/22/2010 1410	09/23/2010 0917
680-61495-9	CPA-MW3D-F(0.2)-0910	Water	09/22/2010 1410	09/23/2010 0917
680-61495-10	BSA-MW2D-0910	Water	09/22/2010 1520	09/23/2010 0917
680-61495-11	BSA-MW2D-F(0.2)-0910	Water	09/22/2010 1520	09/23/2010 0917
680-61495-12	BSA-MW1S-0910	Water	09/22/2010 1630	09/23/2010 0917
680-61495-13	BSA-MW1S-F(0.2)-0910	Water	09/22/2010 1630	09/23/2010 0917
680-61495-14TB	Trip Blank 2	Water	09/22/2010 0000	09/23/2010 0917
680-61543-1	CPA-MW2D-0910	Water	09/23/2010 0800	09/24/2010 0915
680-61543-2	CPA-MW2D-F(0.2)-0910	Water	09/23/2010 0800	09/24/2010 0915
680-61543-3FD	CPA-MW2D-0910-AD	Water	09/23/2010 0800	09/24/2010 0915
680-61543-4	CPA-MW1D-0910	Water	09/23/2010 0920	09/24/2010 0915
680-61543-5	CPA-MW1D-F(0.2)-0910	Water	09/23/2010 0920	09/24/2010 0915
680-61543-6TB	Trip Blank #3	Water	09/23/2010 0000	09/24/2010 0915
680-61543-7	BSA-MW1S-0910	Water	09/23/2010 1045	09/24/2010 0915

TestAmerica Savannah



SAMPLE RESULTS

TestAmerica Savannah

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Client: Solutia Inc.

Client Sample ID:	CPA-MW5D-0910					
Lab Sample ID: Client Matrix:	680-61455-1 Water			Date Date	Sampled: 09/21 Received: 09/22	1/2010 1225 2/2010 0937
		8260B Volatile Organic Compou	nds (GC/MS)			
Method: Preparation:	8260B 5030B	Analysis Batch: 680-181578	Instrument Lab File ID:	ID:	MSP2 p0582.d	
Dilution:	20		Initial Weigl	nt/Volume:	5 mL	
Date Prepared:	09/30/2010 1559		Final vveigr	nt/volume:	5 mL	
Analyte		Result (ug/L)	Qualifier		RL	
Benzene		20	U		20	
Chlorobenzene		1100			20	
1,2-Dichlorobenzen	e	20	U		20	
1,3-Dichlorobenzen	e	20	U		20	
1,4-Dichlorobenzen	e	20	U		20	
Surrogate		%Rec	Qualifier	Acceptan	ce Limits	
4-Bromofluorobenz	ene	95		75 - 120		
Dibromofluorometh	ane	94		75 - 121		
Toluene-d8 (Surr)		103		75 - 120		

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Client: Solutia Inc.

Job Number: 680-61455-1 Sdg Number: KPS060

Client Sample ID:	BSA-MW5D-0910					
Lab Sample ID: Client Matrix:	680-61455-3 Water			Date Date	Sampled: 09 Received: 09	9/21/2010 1558 9/22/2010 0937
		8260B Volatile Organic Compou	nds (GC/MS)			
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 5.0 09/30/2010 1629 09/30/2010 1629	Analysis Batch: 680-181578	Instru Lab F Initial Final '	ment ID: ile ID: Weight/Volume: Weight/Volume:	MSP2 p0584.d 5 mL 5 mL	
Analyte		Result (ug/L)	Qualifier		RL	
Benzene Chlorobenzene		5.0 350	U		5.0 5.0	
1,3-Dichlorobenzene 1,4-Dichlorobenzene		5.0 5.0 5.0	U U U		5.0 5.0 5.0	
Surrogate		%Rec	Qualifier	Acceptan	ce Limits	
4-Bromofluorobenze Dibromofluorometha Toluene-d8 (Surr)	ne ne	96 98 102	na n	75 - 120 75 - 121 75 - 120	di Walakawalika di Katanamaka ngengengg	n 1997) – Staffel Staffel Staffen og konstruktioner og konstruktioner og konstruktioner og konstruktioner og ko

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Client: Solutia Inc.

Client Sample ID:	Trip Blank #1				
Lab Sample ID: Client Matrix:	680-61455-5 Water			Date Sa Date Re	mpled: 09/21/2010 0000 ceived: 09/22/2010 0937
		8260B Volatile Organic Compou	nds (GC/MS)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 1.0 09/30/2010 1530 09/30/2010 1530	Analysis Batch: 680-181578	Instrument Lab File ID Initial Weig Final Weigl	ID: [:] ht/Volume: { ht/Volume: {	MSP2 50580.d 5 mL 5 mL
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	1.0	U		1.0
Surrogate		%Rec	Qualifier	Acceptance	Limits
4-Bromofluorobenze	ne	94		75 - 120	
Dibromofluorometha	ne	101		75 - 121	
Toluene-d8 (Surr)		102		75 - 120	

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Client: Solutia Inc.

Job Number: 680-61455-1 Sdg Number: KPS060

Client Sample ID:	BSA-MW4D-0910	
Lab Sample ID:	680-61495-1	Date Sampled: 09/22/2010 0815
Client Matrix:	Water	Date Received: 09/23/2010 0917
		8260B Volatile Organic Compounds (GC/MS)

Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 20 09/30/2010 1659 09/30/2010 1659	Analysis Batch: 680-181578	Instr Lab Initia Fina	ument ID: File ID: Il Weight/Volume: I Weight/Volume:	MSP2 p0586.d 5 mL 5 mL	
Analyte		Result (ug/L)	Qualifier		RL	
Benzene		20		***************************************	20	
Chlorobenzene		2300			20	
1,2-Dichlorobenzene)	20	U		20	
1,3-Dichlorobenzene)	20	U		20	
1,4-Dichlorobenzene	9	37			20	
Surrogate		%Rec	Qualifier	Acceptan	ce Limits	
4-Bromofluorobenze	ne	94		75 - 120		***********
Dibromofluorometha	ne	96		75 - 121		
Toluene-d8 (Surr)		103		75 - 120		

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Client: Solutia Inc.

Client Sample ID:	CPA-MW4D-0910					
Lab Sample ID: Client Matrix:	680-61495-3 Water			D: D:	ate Sampled: 09/22/201 ate Received: 09/23/201	0 1010 0 0917
		8260B Volatile Organic Compou	nds (GC/M	S)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 10 09/30/2010 1728 09/30/2010 1728	Analysis Batch: 680-181578		Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume	MSP2 p0588.d : 5 mL 5 mL	
Analyte		Result (ug/L)	Qualifie	r	RI	
Benzene		26			10	Anon 1997 - 1997
Chlorobenzene		570			10	
1,2-Dichlorobenzen	e	10	U		10	
1,3-Dichlorobenzen	е	10	U		10	
1,4-Dichlorobenzen	e	10	U		10	
Surrogate -		%Rec	Qualifie	r Accep	tance Limits	
4-Bromofluorobenze	ene	96	00000000000000000000000000000000000000	75 - 12	20	
Dibromofluorometha	ane	91		75 - 12	21	
Toluene-d8 (Surr)		103		75 - 12	20	

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Client: Solutia Inc.

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Client Sample ID:	BSA-MW3D-0910				
Lab Sample ID: Client Matrix:	680-61495-5 Water			Date Sample Date Receiv	ed: 09/22/2010 1130 ed: 09/23/2010 0917
		8260B Volatile Organic Compou	nds (GC/MS)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 10 09/30/2010 1758 09/30/2010 1758	Analysis Batch: 680-181578	Instrument ID Lab File ID: Initial Weight/ Final Weight/	b: MSF p059 Wolume: 5 m Volume: 5 m	2 10.d 1L 1L
Analyte		Result (ug/L)	Qualifier		RL
Benzene		57			10
Chlorobenzene		1200			10
1,2-Dichlorobenzen	e	16			10
1,3-Dichlorobenzen	e	12			10
1,4-Dichlorobenzen	e	290			10
Surrogate		%Rec	Qualifier	Acceptance Limi	ts
4-Bromofluorobenze	ene	97		75 - 120	
Dibromofluorometha	ane	94		75 - 121	
Toluene-d8 (Surr)		102		75 - 120	



Client: Solutia Inc. Job Number: 680-61455-1 Sdg Number: KPS060 **Client Sample ID:** BSA-MW3D-0910-EB Lab Sample I 680-61495-7EB Date Sampled: 09/22/2010 1200 Client Matrix: Water Date Received: 09/23/2010 0917 8260B Volatile Organic Compounds (GC/MS) Method: 8260B Analysis Batch: 680-181578 Instrument ID: MSP2 Preparation: 5030B Lab File ID: p0576.d Dilution: 1.0 Initial Weight/Volume: 5 mL Date Analyzed: 09/30/2010 1431 Final Weight/Volume: 5 mL Date Prepared: 09/30/2010 1431 . 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 94 75 - 120 Dibromofluoromethane 99 75 - 121

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Analytical Data

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Toluene-d8 (Surr)

Client: Solutia Inc.

Client Sample ID:	CPA-MW3D-0910					
Lab Sample ID: Client Matrix:	680-61495-8 Water			D	ate Sampled: ate Received	09/22/2010 1410 : 09/23/2010 0917
		8260B Volatile Organic Compou	inds (GC/M	S)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 5.0 09/30/2010 1827 09/30/2010 1827	Analysis Batch: 680-181578		Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume	MSP2 p0592. a: 5 mL a: 5 mL	đ
Analyte		Result (ug/L)	Qualifie	r	RI	-
Benzene		100			5.0)
Chlorobenzene		290			5.0	D
1,2-Dichlorobenzen	9	5.0	U		5.0)
1,3-Dichlorobenzen	e	5.0	U		5.0)
1,4-Dichlorobenzen	9	5.0	U		5.0	0
Surrogate		%Rec	Qualifie	r Accep	tance Limits	
4-Bromofluorobenze	ene	94		75 - 1	20	
Dibromofluorometha	ine	92		75 - 1	21	
Toluene-d8 (Surr)		104		75 - 1	20	

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Client: Solutia Inc.

Job Number: 680-61455-1 Sdg Number: KPS060

Client Sample ID:	BSA-MW2D-0910				
Lab Sample ID: Client Matrix:	680-61495-10 Water			Dat Dat	e Sampled: 09/22/2010 1520 e Received: 09/23/2010 0917
		8260B Volatile Organic Compou	nds (GC/MS)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 1000 09/30/2010 1857 09/30/2010 1857	Analysis Batch: 680-181578	lr L F	nstrument ID: ab File ID: nitial Weight/Volume: inal Weight/Volume:	MSP2 p0594.d 5 mL 5 mL
Analyte		Result (ug/L)	Qualifier		RL
Benzene		140000			1000
Chlorobenzene		1600			1000
1,2-Dichlorobenzer	ne	1000	U		1000
1,3-Dichlorobenzer	1e	1000	U		1000
1,4-Dichlorobenzer	ne	1000	U		1000
Surrogate		%Rec	Qualifier	Accepta	ance Limits
4-Bromofluorobenz	ene	94	*****	75 - 12	0
Dibromofluorometh	ane	101		75 - 12	1
Toluene-d8 (Surr)		105		75 - 12	0

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Client: Solutia Inc.

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Client Sample ID:	BSA-MW1S-0910						
Lab Sample ID: Client Matrix:	680-61495-12 Water			I	Date Sam Date Rec	ıpled: 09/22/2010 eived: 09/23/2010	1630 0917
		8260B Volatile Organic Compou	inds (GC/M	S)			
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 5000 09/30/2010 1926 09/30/2010 1926	Analysis Batch: 680-181578		Instrument ID: Lab File ID: Initial Weight/Volum Final Weight/Volum	M p(ne: 5 ne: 5	SP2)596.d mL mL	
Analyte		Result (ug/L)	Qualifie	r		RL	
Benzene		590000			*****	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		75 - 120
Dibromofluoromethane	103		75 - 121
Toluene-d8	102		75 - 120

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Client: Solutia In	С.		·	lob Number: 680-61455-1 Sda Number: KPS060
Client Sample ID:	Trip Blank 2			
Lab Sample ID: Client Matrix:	680-61495-14TB Water		Dat Dat	e Sampled: 09/22/2010 0000 e Received: 09/23/2010 0917
		8260B Volatile Organic Compou	nds (GC/MS)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 1.0 09/30/2010 1501 09/30/2010 1501	Analysis Batch: 680-181578	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	MSP2 p0578.d 5 mL 5 mL
Analyte		Result (ug/L)	Qualifier	RL
Benzene		1.0	U	1.0
Chlorobenzene		1.0	U	1.0
1,2-Dichlorobenzen	e	1.0	U	1.0
1,3-Dichlorobenzen	e	1.0	U	1.0
1,4-Dichlorobenzen	e	1.0	U	1.0
Surrogate		%Rec	Qualifier Accepta	ance Limits
4-Bromofluorobenze	ene	94	75 - 120)
Dibromofluorometha	ane	98	75 - 12	1
Toluene-d8 (Surr)		102	75 - 120)

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Client: Solutia Inc.

Job Number: 680-61455-1 Sdg Number: KPS060

Client Sample ID:	CPA-MW2D-0910				
Lab Sample ID: Client Matrix:	680-61543-1 Water			Da Da	te Sampled: 09/23/2010 0800 te Received: 09/24/2010 0915
• 6		8260B Volatile Organic Compou	nds (GC/N	IS)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 200 09/28/2010 1731 09/28/2010 1731	Analysis Batch: 680-181438		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	MSP2 p0520.d 5 mL 5 mL
Analyte		Result (ug/L)	Qualifie	er	RL
Benzene		290			200
Chlorobenzene		21000			200
1,2-Dichlorobenzen	e	200	U		200
1,3-Dichlorobenzen	e	200	U		200
1,4-Dichlorobenzen	e	2300			200
Surrogate		%Rec	Qualifie	er Accept	tance Limits
4-Bromofluorobenze	ene	97		75 - 12	20
Dibromofluorometha	ane	94		75 - 12	21
Toluene-d8 ^e (Surr)		103		75 - 12	20

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Client: Solutia Inc.

Toluene-d8 (Surr)

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Job Number: 680-61455-1 Sdg Number: KPS060

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Client Sample ID:	CPA-MW2D-0910-AD				
Lab Sample ID: Client Matrix:	680-61543-3FD Water			Date S Date F	Sampled: 09/23/2010 0800 Received: 09/24/2010 0915
		8260B Volatile Organic Compou	nds (GC/MS)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 200 09/28/2010 1800 09/28/2010 1800	Analysis Batch: 680-181438	Instrument I Lab File ID: Initial Weigh Final Weigh	ID: ht/Volume: t/Volume:	MSP2 p0522.d 5 mL 5 mL
Analyte		Result (ug/L)	Qualifier		RL
Benzene		300			200
Chlorobenzene		20000			200
1,2-Dichlorobenzen	e	200	U		200
1,3-Dichlorobenzen	e	200	U		200
1,4-Dichlorobenzen	е	2000			200
Surrogate		%Rec	Qualifier	Acceptanc	e Limits
4-Bromofluorobenze	ene	96		75 - 120	
Dibromofluorometha	ane	94		75 - 121	

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•				Analytical Data	
Client: Solutia Ind	D.		Job Number: 680-61455-1 Sdg Number: KPS060		
Client Sample ID:	CPA-MW1D-0910				
Lab Sample ID:	680-61543-4			Date Sampled: 09/23/2010 0920	
Client Matrix:	Water			Date Received: 09/24/2010 0915	
		8260B Volatile Organic Compou	nds (GC/MS)		
Method:	8260B	Analysis Batch: 680-181438	Instrument ID:	MSP2	
Preparation:	5030B		Lab File ID:	p0524.d	
Dilution: •	200		Initial Weight/Volu	me: 5 mL	
Date Analyzed:	09/28/2010 1830		Final Weight/Volu	me: 5 mL	
Date Prepared:	09/28/2010 1830		-		
Analyte		Result (ug/L)	Qualifier	RL	
Benzene		5800		200	
Chlorobenzene		17000		200	
1,2-Dichlorobenzene	e	18000		200	
1,3-Dichlorobenzene	9	1200		200	
1,4-Dichlorobenzene	9	10000		200	
Surrogate		%Rec	Qualifier Acc	ceptance Limits	
4-Bromofluorobenzene		98	75 - 120		
Dibromofluoromethane		97	75 - 121		
Toluene-d8 (Surr)		104	75 - 120		

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Client: Solutia In	IC.			Job Number: 680-61455-1 Sdg Number: KPS060
Client Sample ID:	Trip Blank #3			-
Lab Sample ID: Client Matrix:	680-61543-6TB Water		Dat Dat	e Sampled: 09/23/2010 0000 e Received: 09/24/2010 0915
		8260B Volatile Organic Compou	nds (GC/MS)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 1.0 09/28/2010 1434 09/28/2010 1434	Analysis Batch: 680-181438	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	MSP2 p0508.d 5 mL 5 mL
Analyte		Result (ug/L)	Qualifier	RL
Benzene Chlorobenzene 1,2-Dichlorobenzen 1,3-Dichlorobenzen 1,4-Dichlorobenzen	e e e	1.0 1.0 1.0 1.0 1.0 1.0	บ บ บ บ บ	1.0 1.0 1.0 1.0 1.0 1.0
Surrogate		%Rec	Qualifier Accepta	ance Limits
4-Bromofluorobenze Dibromofluorometha Toluene-d8 (Şurr)	ene ane	93 97 100	75 - 120 75 - 120 75 - 120 75 - 120	2010)//methodo.com/open.em/com/solid

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Client: Solutia Inc.

Client Sample ID:	BSA-MW1S-0910				
Lab Sample ID: Client Matrix: •	680-61543-7 Water			Date Sampled: 09/23/2010 104 Date Received: 09/24/2010 097	15 15
8° 8•		8260B Volatile Organic Compou	nds (GC/MS)		NORCUS
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 5000 09/28/2010 1859 09/28/2010 1859	Analysis Batch: 680-181438	Instrument IE Lab File ID: Initial Weight Final Weight	D: MSP2 p0526.d /Volume: 5 mL /Volume: 5 mL	
Analyte		Result (ug/L)	Qualifier	RL	
Benzene		620000		5000	
Chlorobenzene		5000	U	5000	
1,2-Dichlorobenzen	e	5000	U	5000	
1,3-Dichlorobenzen	е	5000	U	5000	
1,4-Dichlorobenzen	е	5000	U	5000	
Surrogate		%Rec	Qualifier	Acceptance Limits	
4-Bromofluorobenze	ene	95		75 - 120	004008
Dibromofluorometha	ane	100		75 - 121	
Toluene-d8 (Surr)		104		75 - 120	

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1 mL

1050 mL

Client: Solutia In	С.			Job Number: 680-61455-1 Sdg Number: KPS060
Client Sample ID:	CPA-MW5D-0910			·
Lab Sample ID:	680-61455-1			Date Sampled: 09/21/2010 1225
Client Matrix:	Water			Date Received: 09/22/2010 0937
	8270C Semivol	atile Compounds by Gas Chromatography	/Mass Spectrometry (G	;C/MS)
Method:	8270C	Analysis Batch: 680-181416	Instrument ID:	MSG
Preparation:	3520C	Prep Batch: 680-180934	Lab File ID:	q3576.d

Date Prepared: 09/24/2010 1438	Injection Volume: 1 uL			
Analyte	Result (ug/L)	Qualifier	RL	
4-Chloroaniline	19	U	19	*******
2-Chlorophenol	9.5	U	9.5	
1,2,4-Trichlorobenzene •	9.5	U	9.5	
Surrogate	%Rec	Qualifier	Acceptance Limits	
Phenol-d5	72		38 - 116	
2-Fluorophenol	60		36 - 110	
2,4,6-Tribromophenol	91		40 - 139	
Nitrobenzene-d5	72		45 - 112	
2-Fluorobiphenyl	70		50 - 113	
Terphenyl-d 🗫	79		10 - 121	

Initial Weight/Volume:

Final Weight/Volume:

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Dilution:

Date Analyzed:

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09/29/2010 1035

Client: Solutia Inc.

Terphenyl-d14

Job Number: 680-61455-1 Sdg Number: KPS060

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Client Sample ID:	BSA-MW5D-0910					
Lab Sample ID: Client Matrix:	680-61455-3 Water			Date Date	Sampled: 09/21/201 Received: 09/22/201	0 1558 0 0937
,	92700 Comincient	le Compounde by Coo Chromotoor	anhu/Mago Shootri	motor (CC/MC)		
4	8270C Semivolau	e compounds by Gas chromatogra	aphynnass spectre	metry (GC/W3)		
Method:	8270C	Analysis Batch: 680-181416	Instrum	ent ID:	MSG	
Preparation:	3520C	Prep Batch: 680-180934	Lab File	e ID:	g3577.d	
Dilution:	1.0		Initial V	Veight/Volume:	1030 mL	
Date Analyzed:	09/29/2010 1101		Final W	/eight/Volume:	1 mL	
Date Prepared:	09/24/2010 1438		Injectio	n Volume:	1 uL	
Analyte		Result (ug/L)	Qualifier		RL	
1,2,4-Trichlorobenz	ene	9.7	U		9.7	
1,4-Dioxane		9.7	U		9.7	
2-Chlorophenol		9.7	U		9.7	
Surrogate		%Rec	Qualifier	Acceptar	ice Limits	
Phenol-d5		76	***************************************	38 - 116	*****	0001100740000000000000000000000
2,4,6-Tribromophen	ol	93		40 - 139		
2-Fluorobiphenyl		74		50 - 113		
2-Fluorophenol		63		36 - 110		
Nitrobenzene-d5		77		45 - 112		

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Job Number: 680-61455-1 Client: Solutia Inc. Sdg Number: KPS060 **Client Sample ID:** BSA-MW4D-0910 Lab Sample ID: 680-61495-1 Date Sampled: 09/22/2010 0815 Date Received: 09/23/2010 0917 **Client Matrix:** Water 8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) Method: 8270C Analysis Batch: 680-181416 Instrument ID: MSG Prep Batch: 680-180934 Lab File ID: g3579.d 3520C Preparation: Dilution: Initial Weight/Volume: 1050 mL 1.0 09/29/2010 1155 Final Weight/Volume: 1 mL Date Analyzed: Date Prepared: 09/24/2010 1438 Injection Volume: 1 uL Qualifier RL Analyte Result (ug/L) 1,2,4-Trichlorobenzene 9.5 U 9.5 33 9.5 1,4-Dioxane 24 9.5 2-Chlorophenol %Rec Qualifier Acceptance Limits Surrogate Phenol-d5 . 79 38 - 116 2,4,6-Tribromophenol 98 40 - 139 79 50 - 113 2-Fluorobiphenyl 70 36 - 110 2-Fluorophenol 82 45 - 112 Nitrobenzene-d5

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Analytical Data

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Terphenyl-d14

Job Number: 680-61455-1 Sdg Number: KPS060

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					Sug Number. Kr	-3000
Client Sample ID:	CPA-MW4D-0910					
Lab Sample ID:	680-61495-3			Date	Sampled: 09/22/2010	0 1010
Client Matrix:	Water			Date	Received: 09/23/2010	0 0917
	8270C Semivolati	e Compounds by Gas Chromatogra	aphy/Mass Spectro	ometry (GC/MS)		
Method:	8270C	Analysis Batch: 680-181416	Instrum	ent ID:	MSG	
Preparation:	3520C	Prep Batch: 680-180934	Lab File	e ID:	g3580.d	
Dilution:	1.0		Initial V	Veight/Volume:	1050 mL	
Date Analyzed:	09/29/2010 1222		Final W	/eight/Volume:	1 mL	
Date Prepared:	09/24/2010 1438		Injectio	n Volume:	1 uL	
Analyte ·		Result (ug/L)	Qualifier		RL	
4-Chloroaniline		85			19	b
2-Chlorophenol		9.5	U		9.5	
1,2,4-Trichlorobenz	ene	9.5	U		9.5	
Surrogate		%Rec	Qualifier	Acceptan	ce Limits	
Phenol-d5		42		38 - 116		*****
2-Fluorophenol		38		36 - 110		
2,4,6-Tribromophen	nol	56		40 - 139		
Nitrobenzene-d5		46		45 - 112		
2-Fluorobiphenyl		43	Х	50 - 113		

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Client: Solutia Inc.

Terphenyl-d14

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Client: Solutia Inc.

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Client Sample ID:	BSA-MW3D-0910			
Lab Sample ID:	680-61495-5	Date Sampled:	09/22/2010 1130	
Client Matrix»	Water	Date Received:	09/23/2010 0917	
8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)				

Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8270C 3520C 1.0 09/29/2010 1249 09/24/2010 1438	Analysis Batch: 680-18141 Prep Batch: 680-180934	6 Instrumen Lab File ID Initial Weig Final Weig Injection V	t ID: M D: g3 ght/Volume: 10 ght/Volume: 1 Yolume: 1	SG 3581.d 030 mL mL uL
Analyte		Result (ug/L)	Qualifier		RL
1,2,4-Trichlorobenze	ne	9.7	U		9.7
1,4-Dioxane		9.7	U		9.7
2-Chlorophenol		13			9.7
Surrogate		%Rec	Qualifier	Acceptance L	imits
Phenol-d5		70		38 - 116	
2,4,6-Tribromophene	bl	85		40 - 139	
2-Fluorobiphenyl		69		50 - 113	
2-Fluorophenol		59		36 - 110	
Nitrobenzene-d5		67		45 - 112	
Terphenyl-d14		82		10 - 121	

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Client: Solutia Inc.

Job Number: 680-61455-1 Sdg Number: KPS060

Client Sample ID:	BSA-MW3D-0910-EB	
Lab Sample D: Client Matrix	680-61495-7EB Water	Date Sampled: 09/22/2010 1200 Date Received: 09/23/2010 0917

	8270C Semivola	tile Compounds by Gas Chromato	graphy/Mass Spec	ctrometry (GC/MS)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8270C 3520C 1.0 09/29/2010 1316 09/24/2010 1438	Analysis Batch: 680-181416 Prep Batch: 680-180934	6 Instr Lab Initia Fina Injec	ument ID: File ID: al Weight/Volume: I Weight/Volume: stion Volume:	MSG g3582.d 1030 mL 1 mL 1 uL
Analyte		Result (ug/L)	Qualifier		RL
1,2,4-Trichlorobenze	ene	9.7	U		9.7
1,4-Dioxane		9.7	U		9.7
2-Chlorophenol		9.7	U		9.7
Surrogate		%Rec	Qualifier	Acceptan	ce Limits
Phenol-d5		76		38 - 116	
2,4,6-Tribromophene	bl	86	40 - 139		
2-Fluorobiphenyl		72	50 - 113		
2-Fluorophenol		66	36 - 110		
Nitrobenzene-d5		76	45 - 112		
Terphenyl-d14		93		10 - 121	

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Job Number: 680-61455-1 Sdg Number: KPS060 **Client Sample ID:** CPA-MW3D-0910 Lab Sample ID: 680-61495-8 Date Sampled: 09/22/2010 1410 Client Matrix: Water Date Received: 09/23/2010 0917 8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) Method: 8270C Analysis Batch: 680-181416 Instrument ID: MSG 3520C Preparation: Prep Batch: 680-180934 Lab File ID: g3583.d Dilution: 1.0 Initial Weight/Volume: 1020 mL Date Analyzed: 09/29/2010 1343 Final Weight/Volume: 1 mL Date Prepared: 09/24/2010 1438 Injection Volume: 1 uL Analyte Result (ug/L) Qualifier RL 4-Chloroaniline 40 20 2-Chlorophenol U 9.8 9.8 1,2,4-Trichlorobenzene U 9.8 9.8 Surrogate %Rec Qualifier Acceptance Limits Phenol-d5 74 38 - 116 2-Fluorophenol 63 36 - 110 2,4,6-Tribromophenol 92 40 - 139 Nitrobenzene-d5 75 45 - 112 2-Fluorobiphenyl 72 50 - 113 Terphenyl-d14 36 10 - 121

Analytical Data

Client: Solutia Inc.

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Client: Solutia Ir	IC.			oC	b Number: 680-6 Sdg Number: K	1455-1 (PS060
Client Sample ID:	BSA-MW2D-0910					
Lab Sample ID:	680-61495-10			Date	Sampled: 09/22/20	10 1520
Client Matrix:	Water			Date	Received: 09/23/207	10 0917
	8270C Semivolati	le Compounds by Gas Chromatogra	aphy/Mass Spectr	ometry (GC/MS)		
Method:	8270C	Analysis Batch: 680-181416	Instrun	nent ID:	MSG	
Preparation:	3520C	Prep Batch: 680-180934	Lab Fil	e ID:	g3584.d	
Dilution:	1.0		Initial V	Veight/Volume:	1030 mL	
Date Analyzed:	09/29/2010 1410		Final V	Veight/Volume:	1 mL	
Date Prepared:	09/24/2010 1438		Injectio	on Volume:	1 uL	
Analyte		Result (ug/L)	Qualifier		RL	
1,2,4-Trichlorobenz	ene	9.7	U		9.7	
1,4-Dioxane		27			9.7	
2-Chlorophenol		9.7	U		9.7	
Surrogate		%Rec	Qualifier	Acceptan	ce Limits	
Phenol-d5		72		38 - 116		
2,4,6-Tribromopher	nol	85		40 - 139		
2-Fluorobiphenyl		66		50 - 113		
2-Fluorophenol		60		36 - 110		
Nitrobenzene-d5		70		45 - 112		
Terphenyl-d14		40		10 - 121		

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Analytical Data

Client: Solutia Inc.

Client Sample ID:	BSA-MW1S-0910	
Lab Sample ID: Client Matrix:	680-61495-12 Water	Date Sampled: 09/22/2010 1630 Date Received: 09/23/2010 0917
	8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (G	C/MS)

				·····) (- ·····)		
Method: Preparation: Dilution: Date Analyzed: Date Prepare g :	8270C 3520C 1.0 09/29/2010 1437 09/24/2010 1438	Analysis Batch: 680-181416 Prep Batch: 680-180934	Instrun Lab Fil Initial V Final V Injectic	nent ID: e ID: Veight/Volume: /eight/Volume: n Volume:	MSG g3585.d 1030 mL 1 mL 1 uL	
Analyte		Result (ug/L)	Qualifier		RL	
2-Chlorophenol		9.7	U		9.7	
1,2,4-Trichlorobenze	ene	9.7	U		9.7	
Surrogate		%Rec	Qualifier	Acceptance	ce Limits	
Phenol-d5		68		38 - 116		
2-Fluorophenol		58		36 - 110		
2,4,6-Tribromophene	bl	92		40 - 139		
Nitrobenzene-d5		68		45 - 112		
2-Fluorobiphenyl		65		50 - 113		
Terphenyl-d14		36		10 - 121		

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Client: Solutia Inc.

Client Sample ID:	CPA-MW2D-0910				
Lab Sample ID: Client Matrix:	680-61543-1 Water		Date Sampled: 09/23/2010 (Date Received: 09/24/2010 (
	8270C Semivolati	ile Compounds by Gas Chromatogr	aphy/Mass Spectrometry (GC	:/MS)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8270C 3520C 1.0 10/01/2010 1541 09/29/2010 1451	Analysis Batch: 680-181687 Prep Batch: 680-181388	Instrument ID: Lab File ID: Initial Weight/Volu Final Weight/Volu Injection Volume:	MSN n9500.d me: 500 mL me: 0.5 mL 1 uL	
Analyte		Result (ug/L)	Qualifier	RL	
2-Chlorophenol 1,2,4-Trichlorobenz	ene	18 10		10 10	
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Surrogate	%Rec	Qualifier	Acceptance Limits
Phenol-d5	49		38 - 116
2-Fluorophenol	49		36 - 110
2,4,6-Tribromophenol	78		40 - 139
Nitrobenzene-d5	57		45 - 112
2-Fluorobiphenyl	61		50 - 113
Terphenyl-d14	66		10 - 121

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Client: Solutia Inc. Sdg Number: KPS060 **Client Sample ID:** CPA-MW2D-0910-AD Lab Sample ID: 680-61543-3FD Date Sampled: 09/23/2010 0800 **Client Matrix:** Water Date Received: 09/24/2010 0915 8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) Method: 8270C Analysis Batch: 680-181687 Instrument ID: MSN Preparation: 3520C Prep Batch: 680-181388 Lab File ID: n9501.d Dilution: 1.0 Initial Weight/Volume: 980 mL Date Analyzed: 10/01/2010 1607 Final Weight/Volume: 1 mL Date Prepared: 09/29/2010 1451 Injection Volume: 1 uL Analyte Result (ug/L) Qualifier RL 2-Chlorophenol 22 10 1,2,4-Trichlorobenzene 10 U 10 Surrogate %Rec Qualifier Acceptance Limits Phenol-d5 65 38 - 116 2-Fluorophenoi 68 36 - 110 2,4,6-Tribromophenol 88 40 - 139 Nitrobenzene-d5 73 45 - 112 2-Fluorobiphenyl 72 50 - 113 Terphenyl-d14 49 10 - 121

Analytical Data

Job Number: 680-61455-1

Client: Solutia Inc.

Terphenyl-d14

Job Number: 680-61455-1 Sdg Number: KPS060

Client Sample ID:	CPA-MW1D-0910					
Lab Sample ID: Client Matrix:	680-61543-4 Water			Date Date	Sampled: 09/23/20 Received: 09/24/20)10 0920)10 0915
ů -	8270C Semivolati	e Compounds by Gas Chromatogr	aphy/Mass Spect	rometry (GC/MS)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8270C 3520C 10 10/04/2010 1400 09/29/2010 1451	Analysis Batch: 680-181862 Prep Batch: 680-181388	Instru Lab F Initial Final Injecti	ment ID: ile ID: Weight/Volume: Weight/Volume: ion Volume:	MSG g3636.d 1060 mL 1 mL 1 uL	
Analyte		Result (ug/L)	Qualifier		RL	
2-Chlorophenol 1,2,4-Trichlorobenzo	ene	94 780	U		94 94	1
Surrogate		%Rec	Qualifier	Acceptan	ce Limits	
Phenol-d5		0	D	38 - 116		
2-Fluorophenol		0	D	36 - 110		
2,4,6-Tribromophen	ol	0	D	40 - 139		
Nitrobenzene-d5		0	D	45 - 112		
2-Fluorobiphenyl		0	D	50 - 113		

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Client: Solutia Inc.

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Job Number: 680-61455-1 Sdg Number: KPS060

Client Sample ID:	CPA-MW5D-0910				
Lab Sample ID: Client Matrix:	680-61455-1 Water			Da Da	te Sampled: 09/21/2010 1225 te Received: 09/22/2010 0937
•		RSK-175 Dissolved Gase	s (GC)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/04/2010 1736	Analysis Batch: 680-181917	In In Fi In	strument ID: itial Weight/Volume: inal Weight/Volume: jection Volume: esult Type:	VGUFID2 17000 uL 17 mL 1 uL PRIMARY
Analyte		Result (ug/L)	Qualifier		RL
Ethane		2.6			0.35
Ethylene		0.33	U		0.33
Methane		13			0.19

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Client: Solutia Ir	IC.			·	Job Number: 680-61455-1 Sda Number: KPS060
Client Sample ID:	BSA-MW5D-0910				
Lab Sample ID: Client Matrix:	680-61455-3 Water			Dat Dat	e Sampled: 09/21/2010 1558 e Received: 09/22/2010 0937
		RSK-175 Dissolved Gase	s (GC)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/04/2010 1748	Analysis Batch: 680-181917		Instrument ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume: Result Type:	VGUFID2 17000 uL 17 mL 1 uL PRIMARY
Analyte		Result (ug/L)	Qualifier		RL
Ethane Ethylene		13 0.33	U		0.35 0.33

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Analytical Data

Client: Solutia Ir	NC.			Jc	b Number: 680-61455-1 Sdg Number: KPS060
Client Sample ID:	BSA-MW5D-0910				0
Lab Sample ID: Client Matrix:	680-61455-3 Water			Date Date	Sampled: 09/21/2010 1558 Received: 09/22/2010 0937
		RSK-175 Dissolved Gase	s (GC)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/04/2010 1748	Analysis Batch: 680-181925		Instrument ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume: Result Type:	VGUTCD1 17000 uL 17 mL 1 uL PRIMARY
Analyte		Result (ug/L)	Qualifie	r	RL
Methane		5100	***************************************		0.19

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Client: Solutia Inc. Sdg Number: KPS060 **Client Sample ID:** BSA-MW4D-0910 Lab Sample ID: 680-61495-1 Date Sampled: 09/22/2010 0815 **Client Matrix:** Water Date Received: 09/23/2010 0917 RSK-175 Dissolved Gases (GC) Method: **RSK-175** Analysis Batch: 680-181772 Instrument ID: VGUFID2 Preparation: N/A Initial Weight/Volume: 17000 uL Dilution: 1.0 Final Weight/Volume: 17 mL Date Analyzed: 10/01/2010 1458 Injection Volume: 1 uL Date Prepared: Result Type: PRIMARY Analyte Result (ug/L) Qualifier RL Ethane 3.0 0.35 Ethylene 0.33 U 0.33 Methane 44 0.19



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Analytical Data

Job Number: 680-61455-1

Client: Solutia Ir	IC.			JC	b Number: 680-61455-1 Sda Number: KPS060	
Client Sample ID:	CPA-MW4D-0910					
Lab Sample ID: Client Matrix:	680-61495-3 Water			Date	ate Sampled: 09/22/2010 1010 ate Received: 09/23/2010 091	
		RSK-175 Dissolved Gase	s (GC)			
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/01/2010 1511	Analysis Batch: 680-181772		Instrument ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume: Result Type:	VGUFID2 17000 uL 17 mL 1 uL PRIMARY	
Analyte		Result (ug/L)	Qualifie	r	RL	
Ethane Ethylene		13 0.33	U		0.35 0.33	

Client: Solutia Inc.

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Client: Solutia Inc.

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Job Number: 680-61455-1 Sdg Number: KPS060

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Client Sample ID: CPA-MW4D-0910 Lab Sample ID: 680-61495-3 Date Sampled: 09/22/2010 1010 **Client Matrix:** Water Date Received: 09/23/2010 0917 RSK-175 Dissolved Gases (GC) Method: RSK-175 Analysis Batch: 680-181773 Instrument ID: VGUTCD1 Preparation: N/A Initial Weight/Volume: 17000 uL Dilution: 1.0 Final Weight/Volume: 17 mL Date Analy 10/01/2010 1511 Injection Volume: 1 uL Date Prepared: Result Type: PRIMARY . Analyte Result (ug/L) Qualifier RL Methane

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Client: Solutia Ir	nC.			Job Number: 680-61455-1 Sdg Number: KPS060
Client Sample ID:	BSA-MW3D-0910			
Lab Sample ID: Client Matrix:	680-61495-5 Water			Date Sampled: 09/22/2010 1130 Date Received: 09/23/2010 0917
		RSK-175 Dissolved Gase	s (GC)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/01/2010 1524	Analysis Batch: 680-181772	Instrument ID: Initial Weight/Vo Final Weight/Vo Injection Volume Result Type:	VGUFID2 olume: 17000 uL lume: 17 mL e: 1 uL PRIMARY
Analyte		Result (ug/L)	Qualifier	RL
Ethane		1.2		0.35
Englene		1.3		0.33
wouldid		240		0.19

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Client: Solutia Inc.

BSA-MW3D-0910-EB

680-61495-7EB

Client Sample ID:

Lab Sample ID:

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Job Number: 680-61455-1 Sdg Number: KPS060

Date Sampled: 09/22/2010 1200

Client Matrix:	Water			Date Sampled: 09/22/2010 1200 Date Received: 09/23/2010 0917
		RSK-175 Dissolved Gases	s (GC)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/01/2010 1537	Analysis Batch: 680-181772	Instrument ID: Initial Weight/Volu Final Weight/Volur Injection Volume: Result Type:	VGUFID2 me: 17000 uL ne: 17 mL 1 uL PRIMARY
Analyte		Result (ug/L)	Qualifier	RI
Ethane Ethylene Methane		0.35 0.33 0.30	U U	0.35 0.33 0.19

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Client: Solutia Inc. Job Number: 680-61455-1 Client Sample ID: CPA-MW3D-0910 Lab Sample ID: 680-61495-8 Date Sampled: 09/22/2010 1410 Client Matrix: Water Date Received: 09/23/2010 0917 **RSK-175 Dissolved Gases (GC)** Method: **RSK-175** Analysis Batch: 680-181772 Instrument ID: VGUFID2 Preparation:. N/A Initial Weight/Volume: 17000 uL Dilution: 1.0 Final Weight/Volume: 17 mL Date Analyzed: 10/01/2010 1550 Injection Volume: 1 uL Date Prepared: Result Type: PRIMARY Analyte Result (ug/L) Qualifier RL Ethane 16 0.35 Ethylene 0.33 U 0.33

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Analytical Data

Sdg Number: KPS060

Client: Solutia Inc.

Client Sample ID:	CPA-MW3D-0910			U U
Lab Sample ID: Client Matrix:	680-61495-8 Water		Da Da	te Sampled: 09/22/2010 1410 te Received: 09/23/2010 0917
		RSK-175 Dissolved Gases	s (GC)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/01/2010 1550	Analysis Batch: 680-181773	Instrument ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume: Result Type:	VGUTCD1 17000 uL 17 mL 1 uL PRIMARY
Analyte		Result (ug/L)	Qualifier	RL
Methane		15000		0.19

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Client: Solutia Inc.

Client Sample ID:	BSA-MW2D-0910				
Lab Sample ID: Client Matrix:	680-61495-10 Water			Da Da	te Sampled: 09/22/2010 1520 te Received: 09/23/2010 0917
		RSK-175 Dissolved Gase	s (GC)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/01/2010 1602	Analysis Batch: 680-181772	Ins Ini Fir Inj Re	strument ID: itial Weight/Volume: nal Weight/Volume: jection Volume: esult Type:	VGUFID2 17000 uL 17 mL 1 uL PRIMARY
Analyte		Result (ug/L)	Qualifier		RL
Ethane Ethylene		13 0.33	U		0.35 0.33

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Client: Solutia Inc. Job Number: 680-61455-1 Sdg Number: KPS060 **Client Sample ID:** BSA-MW2D-0910 Lab Sample ID: 680-61495-10 Date Sampled: 09/22/2010 1520 **Client Matrix:** Water Date Received: 09/23/2010 0917 RSK-175 Dissolved Gases (GC) Method: **RSK-175** Analysis Batch: 680-181773 Instrument ID: VGUTCD1 Preparation: N/A Initial Weight/Volume: 17000 uL Dilution: 1.0 Final Weight/Volume: 17 mL Date Analyzed: 10/01/2010 1602 Injection Volume: 1 uL Date Prepared: Result Type: PRIMARY Analyte ٠. Result (ug/L) Qualifier RL Methane 17000 0.19

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Analytical Data

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Client: Solutia Ir	IC.			L	ob Number: 680-61455-1 Sdg Number: KPS060
Client Sample ID:	BSA-MW1S-0910				
Lab Sample ID: Client Matrix:	680-61495-12 Water			Date	e Sampled: 09/22/2010 1630 e Received: 09/23/2010 0917
		RSK-175 Dissolved Gases	s (GC)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/01/2010 1615	Analysis Batch: 680-181772		Instrument ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume: Result Type:	VGUFID2 17000 uL 17 mL 1 uL PRIMARY
Analyte		Result (ug/L)	Qualifie	ər	RL
Ethane Ethylene	na, manana a mary panaha diki har 3 (2000), a ka k	0.35 0.33	U U		0.35 0.33

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Client: Solutia Inc. Job Number: 680-61455-1 Sdg Number: KPS060 **Client Sample ID:** BSA-MW1S-0910 Lab Sample ID: 680-61495-12 Date Sampled: 09/22/2010 1630 Client Matrix: Water Date Received: 09/23/2010 0917 RSK-175 Dissolved Gases (GC) . Method: **RSK-175** Analysis Batch: 680-181773 Instrument ID: VGUTCD1 Preparation: N/A Initial Weight/Volume: 17000 uL Dilution: 1.0 Final Weight/Volume: 17 mL Date Analyzed: 10/01/2010 1615 Injection Volume: 1 uL Date Prepared: Result Type: PRIMARY Analyte Result (ug/L) Qualifier RL Methane 9100 0.19

Analytical Data

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Client: Solutia Inc.

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Job Number: 680-61455-1 Sdg Number: KPS060

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Client Sample ID:	CPA-MW2D-0910				•
Lab Sample ID: Client Matrix:	680-61543-1 Water			Dat Dat	e Sampled: 09/23/2010 0800 e Received: 09/24/2010 0915
		RSK-175 Dissolved Gases	s (GC)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/04/2010 1801	Analysis Batch: 680-181917		Instrument ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume: Result Type:	VGUFID2 17000 uL 17 mL 1 uL PRIMARY
Analyte		Result (ug/L)	Qualifie	er	RI
Ethane Ethylene		5.8 0.33	U		0.35

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Client: Solutia Inc.

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Client Sample ID:	CPA-MW2D-0910				
Lab Sample ID: Client Matrix:	680-61543-1 Water			נ	Date Sampled: 09/23/2010 0800 Date Received: 09/24/2010 0915
,		RSK-175 Dissolved Gases	s (GC)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/04/2010 1801	Analysis Batch: 680-181925		Instrument ID: Initial Weight/Volum Final Weight/Volum Injection Volume: Result Type:	VGUTCD1 e: 17000 uL e: 17 mL 1 uL PRIMARY
Analyte		Result (ug/L)	Qualifie	r	RL
Methane		5900			0.19

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Client: Solutia Inc.

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Job Number: 680-61455-1

Sdg Number: KPS060

Client Sample ID:	CPA-MW1D-0910			
Lab Sample ID: Client Matrix:	680-61543-4 Water		Date	Sampled: 09/23/2010 0920 Received: 09/24/2010 0915
		RSK-175 Dissolved Gases (GC)		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/04/2010 1814	Analysis Batch: 680-181917	Instrument ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume: Result Type:	VGUFID2 17000 uL 17 mL 1 uL PRIMARY

		stocale type.	
Analyte	Result (ug/L)	Qualifier	RL
Ethane	40		0.35
Ethylene	0.33	U	0.33
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Client: Solutia Inc.

Client Sample ID:CPA-MW1D-0910Lab Sample ID:680-61543-4Client Matrix:Water

Date Sampled: 09/23/2010 0920 Date Received: 09/24/2010 0915

		RSK-175 Dissolved Gase	es (GC)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	RSK-175 N/A 1.0 10/04/2010 1814	Analysis Batch: 680-181925	Instrument ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume: Result Type:	VGUTCD1 17000 uL 17 mL 1 uL PRIMARY
Analyte Methane		Result (ug/L)	Qualifier	RL
		.0000		0.19

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Job Number: 680-61455-1

0.050

0.010

Client: Solutia Inc.

Sdg Number: KPS060 Client Sample ID: CPA-MW5D-0910 Lab Sample ID: 680-61455-1 Date Sampled: 09/21/2010 1225 Client Matrix: * Water Date Received: 09/22/2010 0937 6010B Metals (ICP)-Total Recoverable Method: 6010B Analysis Batch: 680-183127 Instrument ID: ICPD Preparation: 3005A Prep Batch: 680-182835 Lab File ID: 1015101039.chr Dilution: 1.0 Initial Weight/Volume: 50 mL Date Analyzed: 10/15/2010 1634 Final Weight/Volume: 50 mL Date Prepared: 10/13/2010 1455 Analyte Result (mg/L) Qualifier RL 96

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Iron Manganese

19/3/10

Client: Solutia	Inc.			Job Number: 680-61455-1 Sdg Number: KPS060
Client Sample ID:	CPA-MW5D-F(0.2)-0910			
Lab Sample ID: Client Matrix:	680-61455-2 Water			Date Sampled: 09/21/2010 1225 Date Received: 09/22/2010 0937
ø		6010B Metals (ICP)-Diss	olved	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1700 10/13/2010 1455	Analysis Batch: 680-183127 Prep Batch: 680-182835	Instrument ID: Lab File ID: Initial Weight/Volu Final Weight/Volu	ICPD 1015101039.chr Ime: 50 mL me: 50 mL
Analyte		Result (mg/L)	Qualifier	RL
Iron, Dissolved		94		0.050
Manganese, Dissolved		3.5		0.010

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Analytical Data

Client Sample ID:	BSA-MW5D-0910				Job Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61455-3 Water			Dat Dat	e Sampled: 09/21/2010 1558 e Received: 09/22/2010 0937
		6010B Metals (ICP)-Total Re	coverable		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1705 10/13/2010 1455	Analysis Batch: 680-183127 Prep Batch: 680-182835		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	ICPD 1015101039.chr 50 mL 50 mL
Analyte Iron	MANNERS MAINTERS AND	Result (mg/L)	Qualifie	F	RL
wanganese		0.41			0.050 0.010

Client: Solutia Inc.

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Client: Solutia	Inc.			Analytical Data
Client Sample ID:	BSA-MW5D-F(0.2)-091()		Job Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61455-4 Water			Date Sampled: 09/21/2010 1558 Date Received: 09/22/2010 0937
		6010B Metals (ICP)-Diss	solved	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1710 10/13/2010 1455	Analysis Batch: 680-183127 Prep Batch: 680-182835	Instrument ID: Lab File ID: Initial Weight/Volum Final Weight/Volum	ICPD 1015101039.chr e: 50 mL e: 50 mL
Analyte				
Iron, Dissolved		Result (mg/L)	Qualifier	RL
Manganese, Dissol	ved	0.3		0.050
		0.10		0.010

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Client:	Solutia	Inc.
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Client Sample ID:	BSA-MW4D-0910			Job Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61495-1 Water		Date Date	e Sampled: 09/22/2010 0815 e Received: 09/23/2010 0917
		6010B Metals (ICP)-Total Recov	/erable	
Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1726 10/13/2010 1455	Analysis Batch: 680-183127 Prep Batch: 680-182835	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	ICPD 1015101039.chr 50 mL 50 mL
Analyte Iron Manganese	Men and a management of the second	Result (mg/L) (10 0.71		RL 0.050 0.010

Job Number: 680-61455-1 Sdg Number: KPS060 **Client Sample ID:** BSA-MW4D-F(0.2)-0910 Lab Sample ID: 680-61495-2 Client Matrix: Date Sampled: 09/22/2010 0815 Water Date Received: 09/23/2010 0917 6010B Metals (ICP)-Dissolved Method: 6010B Analysis Batch: 680-183127 Instrument ID: Preparation: 3005A ICPD Prep Batch: 680-182835 Dilution: Lab File ID: 1015101039.chr 1.0 Initial Weight/Volume: Date Analyzed: 10/15/2010 1731 50 mL Final Weight/Volume: Date Prepared: 10/13/2010 1455 50 mL Analyte Result (mg/L) Qualifier Iron, Dissolved RL 8.3 Manganese, Dissolved 0.050 0.68 0.010

Analytical Data

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Client: Solutia Inc.

Client: Solutia	Inc.				Analytical Data
Client Sample ID:	CPA-MW4D-0910			J	lob Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61495-3 Water			Date Date	e Sampled: 09/22/2010 1010 e Received: 09/23/2010 0917
		6010B Metals (ICP)-Total R	ecoverable		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1737 10/13/2010 1455	Analysis Batch: 680-183127 Prep Batch: 680-182835		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	ICPD 1015101039.chr 50 mL 50 mL
Analyte Iron Manganese	an forma a superior and a superior and a superior of the superior and an and a superior and a superior and a su	Result (mg/L) 11 0.24	Qualifie		RL 0.050 0.010

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Client: Solutia	Inc.				Analytical Data
Client Sample ID:	CPA-MW4D-F(0.2)-0910				Job Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61495-4 Water			Da Da	ate Sampled: 09/22/2010 1010 ate Received: 09/23/2010 0917
		6010B Metals (ICP)-Disso	bevlc		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1742 10/13/2010 1455	Analysis Batch: 680-183127 Prep Batch: 680-182835		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	ICPD 1015101039.chr 50 mL 50 mL
Analyte					
Iron, Dissolved		Result (mg/L)	Qualifie	r	RL
Manganese, Dissol	ved	0.24			0.050
					0.010

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Client: Solutia	Inc.				Analytical Data
Client Sample ID:	BSA-MW3D-0910			Jo	ob Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61495-5 Water			Date Date	Sampled: 09/22/2010 1130 Received: 09/23/2010 0917
		6010B Metals (ICP)-Total Re	coverable		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1747 10/13/2010 1455	Analysis Batch: 680-183127 Prep Batch: 680-182835	Instrument I Lab File ID: Initial Weigh Final Weigh	D: it/Volume: t/Volume:	ICPD 1015101039.chr 50 mL 50 mL
Analyte Iron Manganese	na mana mana kana kana mang kana mana kana kana kana kana kana kana	Result (mg/L) 12 0.57		WWYNDIOL MWDI Y MWYNN C MOLENDOL AN	RL 0.050 0.010

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Client: Solutia	Inc.				Analytical Data
Client Sample ID:	BSA-MW3D-F(0.2)-09	10			lob Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61495-6 Water			Date	Sampled: 09/22/2010 1130
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1753 10/13/2010 1455	6010B Metals (ICP)-Dis Analysis Batch: 680-183127 Prep Batch: 680-182835	solved	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	ICPD 1015101039.chr 50 mL 50 mL
Analyte ron, Dissolved Aanganese, Dissolv	neq	Result (mg/L) 11 0.56	Qualifie	r	RL 0.050 0.010

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Client: Solutia	Inc.				Analytical Data
Client Sample ID:	BSA-MW3D-0910-EB				Job Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61495-7EB Water			Da Da	ite Sampled: 09/22/2010 1200 ite Received: 09/23/2010 0917
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1758 10/13/2010 1455	6010B Metals (ICP)-Total Re Analysis Batch: 680-183127 Prep Batch: 680-182835	coverable	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	ICPD 1015101039.chr 50 mL 50 mL
Analyte Iron Manganese	an a	Result (mg/L) 0.050 0.010	Qualifie U U	9 7 1978 - 1979 - 1970 - 19 - 1970 -	RL 0.050 0.010

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Client: Solutia	Inc.			Analytical Data
Client Sample ID:	CPA-MW3D-0910			Job Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61495-8 Water		D: D:	ate Sampled: 09/22/2010 1410 ate Received: 09/23/2010 0917
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1803 10/13/2010 1455	6010B Metals (ICP)-Total Re Analysis Batch: 680-183127 Prep Batch: 680-182835	ecoverable Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	ICPD 1015101039.chr 50 mL 50 mL
Analyte Iron Manganese	States frager version and the States and States a	Result (mg/L) 15 0.72		RL 0.050 0.010

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Client: Solutia	a Inc.				Analytical Data
Client Sample I): CPA-MW3D-F(0.2)-09	10			Job Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61495-9 Water			Dat	e Sampled: 09/22/2010 1410 e Received: 09/23/2010 0917
Barth		6010B Metals (ICP)-Dise	solved		
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1809 10/13/2010 1455	Analysis Batch: 680-183127 Prep Batch: 680-182835		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	ICPD 1015101039.chr 50 mL 50 mL
Analyte		_			
Iron, Dissolved		Result (mg/L)	Qualifie	C	RL
wanganese, Disso	lved	0.72			0.050

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Analytical Data Client: Solutia Inc. Job Number: 680-61455-1 **Client Sample ID:** Sdg Number: KPS060 BSA-MW2D-0910 Lab Sample ID: 680-61495-10 **Client Matrix:** Water Date Sampled: 09/22/2010 1520 Date Received: 09/23/2010 0917 6010B Metals (ICP)-Total Recoverable Method: · 6010B Analysis Batch: 680-183127 Preparation: Instrument ID: 3005A ICPD Prep Batch: 680-182835 Dilution: Lab File ID: 1.0 1015101039.chr Date Analyzed: Initial Weight/Volume: 10/15/2010 1825 50 mL Date Prepared: Final Weight/Volume: 10/13/2010 1455 50 mL Analyte Result (mg/L) Iron Qualifier RL 4.0 Manganese 0.050 0.57

Client Sample ID: BSA-MW2D-F(0.2)-0910 Sdg Number: 680-61495-11 Sdg Number: KPS060 Lab Sample ID: 680-61495-11 Date Sampled: 09/22/2010 1520 Client Matrix: Water Date Sampled: 09/22/2010 1520 Method: 6010B Analysis Batch: 680-183127 Instrument ID: ICPD Preparation: 3005A Prep Batch: 680-182835 Lab File ID: 1015101039.chr Dilution: 1.0 Instrument ID: ICPD 1015101039.chr Date Prepared: 10/15/2010 1830 Instlial Weight/Volume: 50 Date Prepared: 10/13/2010 1455 Kesult (mg/L) Qualifier RL Analyte Result (mg/L) Qualifier RL 0.050 0.050 On, Dissolved 3.0 0.53 0.050 0.050 0.050	Client: Solutia	Inc.			Analytical Data
Lab Sample ID: 680-61495-11 Date Sampled: 09/22/2010 1520 Client Matrix: Water Date Sampled: 09/22/2010 1520 Method: 6010B Analysis Batch: 680-183127 Instrument ID: ICPD Preparation: 3005A Prep Batch: 680-182835 Lab File ID: 1015101039.chr Dilution: 1.0 Initial Weight/Volume: 50 mL Date Prepared: 10/13/2010 1455 Result (mg/L) Qualifier RL Analyte Result (mg/L) Qualifier RL 0.050 0.050 0.010	Client Sample ID	: BSA-MW2D-F(0.2)-09	910		Job Number: 680-61455-1 Sdg Number: KPS060
Method: 6010B Analysis Batch: 680-183127 Instrument ID: ICPD Preparation: 3005A Prep Batch: 680-182835 Lab File ID: 1015101039.chr Dilution: 1.0 Initial Weight/Volume: 50 mL Date Analyzed: 10/15/2010 1830 Initial Weight/Volume: 50 mL Date Prepared: 10/13/2010 1455 Final Weight/Volume: 50 mL Analyte Result (mg/L) Qualifier RL Iron, Dissolved 3.0 0.53 0.050 0.050	Lab Sample ID: Client Matrix:	680-61495-11 Water		Dat Dat	e Sampled: 09/22/2010 1520 e Received: 09/23/2010 0917
Analysis Batch: 680-183127 Instrument ID: ICPD Preparation: 3005A Prep Batch: 680-183127 Instrument ID: 10/15/101039.chr Dilution: 1.0 10/15/2010 1830 Initial Weight/Volume: 50 mL Date Analyzed: 10/13/2010 1455 Final Weight/Volume: 50 mL Analyte Result (mg/L) Qualifier RL Analyte 3.0 0.050 0.050 Wanganese, Dissolved 0.53 0.010 0.010	Method	00405	6010B Metals (ICP)-Diss	olved	
Date Prepared: 10/13/2010 1455 Final Weight/Volume: 50 mL Analyte Result (mg/L) Qualifier RL Vanganese, Dissolved 3.0 0.050 0.10 0.010	Preparation: Dilution: Date Analyzed:	6010B 3005A 1.0 10/15/2010 1830	Analysis Batch: 680-183127 Prep Batch: 680-182835	Instrument ID: Lab File ID: Initial Weight/Volume:	ICPD 1015101039.chr
Analyte Result (mg/L) Qualifier RL Iron, Dissolved 3.0 0.050 Wanganese, Dissolved 0.53 0.010	Date Prepared:	10/13/2010 1455		Final Weight/Volume:	50 mL 50 mL
Iron, Dissolved Result (mg/L) Qualifier RL Manganese, Dissolved 0.53 0.050	Analyte		_		
0.53 0.050 0.010	Iron, Dissolved Manganese, Dissol		Result (mg/L) 3.0	Qualifier	RL
M M I I I			0.53		0.050

Client: Solutia Inc. Job Number: 680-61455-1 **Client Sample ID:** Sdg Number: KPS060 BSA-MW1S-0910 Lab Sample ID: 680-61495-12 Client Matrix: Water Date Sampled: 09/22/2010 1630 Date Received: 09/23/2010 0917 6010B Metals (ICP)-Total Recoverable Method: 6010B Analysis Batch: 680-183127 Preparation: Instrument ID: 3005A ICPD Prep Batch: 680-182835 Dilution: Lab File ID: 1.0 1015101039.chr Date Analyzed: Initial Weight/Volume: 10/15/2010 1835 50 mL Date Prepared: 10/13/2010 1455 Final Weight/Volume: 50 mL Analyte Result (mg/L) Iron Qualifier RL 3.7 Manganese 0.050 0.43

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Analytical Data

Client Sample ID:	BSA-MW1S-F(0.2)-0910)			Job Number: 680-61455-1 Sdg Number: KPS060)
Lab Sample ID: Client Matrix:	680-61495-13 Water			Dai Dai	te Sampled: 09/22/2010 1630 te Received: 09/23/2010 0917	
Martha 1		6010B Metals (ICP)-Disso	olved			ł
Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1840 10/13/2010 1455	Analysis Batch: 680-183127 Prep Batch: 680-182835		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	ICPD 1015101039.chr 50 mL 50 mL	
Analyte Iron, Dissolved Manganese, Dissolv		Result (mg/L) 0.79 0.33	Qualifie	una transmissionen an anti anti anti anti anti anti anti	RL 0.050 0.010	

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Client: Solutia Inc.

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Analytical Data

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Client: Solutia	Inc.				Analytical Data
Client Sample ID	: CPA-MW2D-0910				Job Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61543-1 Water			C C	Date Sampled: 09/23/2010 0800
Method:	00 + 0 - 7	6010B Metals (ICP)-Total R	ecoverable		09/24/2010 0915
Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1907 10/13/2010 1458	Analysis Batch: 680-183127 Prep Batch: 680-182836	 	Instrument ID: _ab File ID: nitial Weight/Volume Final Weight/Volume	ICPD 1015101039.chr 50 mL 50 mL
Analyte Iron	na dalaman una 11.00 dilamanteri ang	Result (mg/L)	Qualifier		5.
Manganese		5.7 0.37			RL 0.050 0.010

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Client: Solutia	Inc.			Analytical Data
ڑ :Client Sample ID	CPA-MW2D-F(0.2)-091	10	J	lob Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61543-2 Water		Date	e Sampled: 09/23/2010 0800 e Received: 09/24/2010 0915
В А Ш		6010B Metals (ICP)-Dissol	ved	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1944 10/13/2010 1458	Analysis Batch: 680-183127 Prep Batch: 680-182836	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	ICPD 1015101039.chr 50 mL 50 mL
Analyte Iron, Dissolved Manganese, Dissol	vega annanyaanaanaanaanaanaanaanaanaanaanaana	Result (mg/L) 4.7 0.34		RL 0.050 0.010

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Client: Solutia Inc. Job Number: 680-61455-1 Client Sample ID: Sdg Number: KPS060 CPA-MW1D-0910 Lab Sample ID: 680-61543-4 Client Matrix: Date Sampled: 09/23/2010 0920 Water Date Received: 09/24/2010 0915 6010B Metals (ICP)-Total Recoverable Method: 6010B Analysis Batch: 680-183127 Preparation: Instrument ID: 3005A ICPD Prep Batch: 680-182836 Dilution: Lab File ID: 1.0 1015101039.chr Date Analyzed: Initial Weight/Volume: 10/15/2010 1950 50 mL Date Prepared: Final Weight/Volume: 10/13/2010 1458 50 mL Analyte Result (mg/L) Iron Qualifier RL 3.5 Manganese 0.050 0.28

Analytical Data

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Client: Solutia	: Inc.				Analytical Data
Client Sample ID	CPA-MW1D-F(0.2)-09	10			Job Number: 680-61455-1 Sdg Number: KPS060
Lab Sample ID: Client Matrix:	680-61543-5 Water			Dat	e Sampled: 09/23/2010 0920 e Received: 09/24/2010 0915
Method	22/27	6010B Metals (ICP)-Dis	solved		
Preparation: Dilution: Date Analyzed: Date Prepared:	6010B 3005A 1.0 10/15/2010 1955 10/13/2010 1458	Analysis Batch: 680-183127 Prep Batch: 680-182836		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	ICPD 1015101039.chr 50 mL 50 mL
Analyte Iron, Dissolved	entern ein fördatte föld medden och ander och ander att som att	Result (mg/L)	Qualifie	r	DI
Manganese, Disso	lved	1.8 0.14			0.050
					0.010

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Analytical Data

Client Course I am		General Chemistry			
Chefit Sample ID	CPA-MW5D-0910				
Lab Sample ID: Client Matrix:	680-61455-1 Water			Data Samula d	
				Date Sampled:	09/21/2010 1225
Analyte	Desult			Date Medelved	09/22/2010 0937
Chloride	Result 280	Qual Units	RL	Dil	Method
Nitrate as N	Analysis Batch: 680-182871	Date Analyzed: 10/13/2010 1755	5.0	5.0	325.2
Sulfate	0.050 Analysis Batch: 680-180829	U mg/L Date Analyzed: 09/22/2010 1700	0.050	1.0	353.2
Total Organic Cart	1700 Analysis Batch: 680-181295	mg/L Date Analyzed: 09/28/2010 1457	500	100	375.4
Analysis Batch	4.4 Analysis Batch: 680-181510	mg/L Date Analyzed: 09/29/2010 1533	1.0	1.0	415.1
Analyte	5				
Alkalinity	Result 340	Qual Units	RL	Dil	Method
Carbon Disvide	Analysis Batch: 680-180753	mg/L Date Analyzed: 09/22/2010 2103	5.0	1.0 :	310.1
Dioxide, Fri	ee 94 Analysis Batch: 680-180753	mg/L Date Analyzed: 09/22/2010 2103	5.0	1.0 3	310.1

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Analytical Data

Job	Number:	680	-61455-1
	Sdg Num	ber:	KPS060

				000000000000000000000000000000000000000	Sug Number: K	.PS060
Client Sample ID:	CPA-MW5D-F(0.2)-0910	General Chemistry			
Lab Sample ID: Client Matrix: Analyte	680-61455-2 Water	_			Date Sampled: 09/21/201 Date Received: 09/22/201	0 1225 0 0937
Dissolved Organic	Carbon-Dissolved Analysis Batch: 680-	Result 8.4 181665	Qual Units V R I/ mg/L Date Analyzed: 09/30/2010 1253	RL 1.0	Dil Method 1.0 415.1	

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Analytical Data

•		Gene	eral Chemistry			
Client Sample ID	: BSA-MW5D-0910					
Lab Sample ID: Client Matrix:	680-61455-3 Water				Date Sampled:	09/21/2010 1558
Analyte	Result	• •			inter i toboliveu.	09/22/2010 0937
Chloride	260	Qual	Units	RL	Dil	Method
Nitrate as N	Analysis Batch: 680-182871	Date Analyzed:	10/13/2010 1755	5.0	5.0	325.2
Sulfate	0.050 Analysis Batch: 680-180829	U Date Analyzed: (mg/L 09/22/2010 1704	0.050	1.0	353.2
Total Organic Cart	69 Analysis Batch: 680-181295	Date Analyzed: 0	mg/L)9/28/2010 1454	25	5.0	375.4
, votar Organic Carbo	6.1 Analysis Batch: 680-181510	Date Analyzed: 0	mg/L)9/29/2010 1559	1.0	1.0	415.1
Analyte	Popult	. .				
Alkalinity	730	Qual (Units	RL	Dil	Viethod
Carbon Dioxido, Er	Analysis Batch: 680-180753	r Date Analyzed: 0	ng/L 9/22/2010 2126	5.0	1.0 ;	310.1
ouroon bloxide, Fre	ee 50 Analysis Batch: 680-180753	n Date Analyzed: 09	ng/L 9/22/2010 2126	5.0	1.0 8	310.1

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Client: Solutia	Inc.			1	Analytical Data
				Job Numl Sdg	ber: 680-61455-1 Number: KPS060
Client Sample ID:	BSA-MW5D-F(0.2)-09	General Chemistry			
Lab Sample ID: Client Matrix:	680-61455-4 Water			Date Sampleo	I: 09/21/2010 1558
Analyte	Res			Date Received	a: 09/22/2010 0937
Dissolved Organic	Carbon-Dissolved 81 Analysis Batch: 680-181665	Date Analyzed: 09/30/2010 1253	RL 1.0	Dil 1.0	Method 415.1

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Analytical Data

Client Sample ID	: BSA-MW4D-0910	General Chemistry			
Lab Sample ID: Client Matrix:	680-61495-1 Water			Date Sample	ed: 09/22/2010 0815
Analyte	Popult	• •			09/23/2010 0917
Chloride	160	Qual Units	RL	Dil	Method
Nitrate as N	Analysis Batch: 680-182871	Date Analyzed: 10/13/2010 1747	5.0	5.0	325.2
Sulfate	0.90 Analysis Batch: 680-181103	mg/L Date Analyzed: 09/23/2010 1536	0.050	1.0	353.2
Total Organic Cart	Analysis Batch: 680-182273	mg/L Date Analyzed: 10/07/2010 1220	25	5.0	375.4
	5.4 Analysis Batch: 680-181644	mg/L Date Analyzed: 09/30/2010 1536	1.0	1.0	415.1
Analyte	Result				
Alkalinity	610		RL	Dil	Method
Carbon Dioxide Fre	Analysis Batch: 680-181350	Date Analyzed: 09/28/2010 1151	5.0	1.0	310.1
	Analysis Batch: 680-181350	mg/L Date Analyzed: 09/28/2010 1151	5.0	1.0	310.1

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Analytical Data

					Sug Number: KPS060
Client Course to the			General Chemistry		
Chefit Sample ID:	BSA-MW4D-F	0.2)-0910			
Lab Sample ID: Client Matrix:	680-61495-2 Water				Date Sampled: 09/22/2010 0815 Date Received: 09/23/2010 0917
Analyte		Result	Qual Unito		
Dissolved Organic	Carbon-Dissolved Analysis Batch: 680-	9.8 •181927	" R " mg/L Date Analyzed: 10/04/2010 1137	RL 1.0	Dil Method 1.0 415.1

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Analytical Data

Client Sample ID	: CPA-MW4D-0910	General Chemistry			
Lab Sample ID: Client Matrix:	680-61495-3 Water			Date Sample Date Receive	d: 09/22/2010 1010 d: 09/23/2010 0917
Chlorida	Result	Qual Units			
Chloride	280	ma/l	RL	Dil	Method
Nitrate as N	Analysis Batch: 680-182871	Date Analyzed: 10/13/2010 1747	5.0	5.0	325.2
Sulfate	0.050 Analysis Batch: 680-181103	U mg/L Date Analyzed: 09/23/2010 1540	0.050	1.0	353.2
Total Organic Carb	5.0 Analysis Batch: 680-182273	U mg/L Date Analyzed: 10/07/2010 1123	5.0	1.0	375.4
organio dali	6.5 Analysis Batch: 680-181644	mg/L Date Analyzed: 09/30/2010 1552	1.0	1.0	415.1
Analyte	Result				
Alkalinity	770		RL	Dil	Method
Carbon Dioxide Er	Analysis Batch: 680-181350	mg/L Date Analyzed: 09/28/2010 1203	5.0	1.0	310.1
	Analysis Batch: 680-181350	mg/L Date Analyzed: 09/28/2010 1203	5.0	1.0	310.1

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Analytical Data

Job Number: 680-61455-1 Sdg Number: KPS060

					0	
			General Chei	mistry		
Client Sample ID:	CPA-MW4D-F	(0.2)-0910				
Lab Sample ID: Client Matrix:	680-61495-4 Water				Date Sampled: Date Received	09/22/2010 1010
Analyte		Result	Qual Unite			10,2010,0017
Dissolved Organic	Carbon-Dissolved	10		RL	Dil	Method
	Analysis Batch: 680-	-181927	Date Analyzed: 10/04/20	1.0 1137	1.0	415.1

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Analytical Data

Job Number: 680-61455-1 Sdg Number: KPS060

		General Chemistry			
Client Sample ID	: BSA-MW3D-0910	-			
Lab Sample ID: Client Matrix:	680-61495-5 Water			Date Sample	d: 09/22/2010 1130
Analyte	Decult			Date Necelve	d: 09/23/2010 0917
Chloride	Result	Qual Units	RL	Dil	Motheral
Nitrato oo N	Analysis Batch: 680-182871	mg/L Date Analyzed: 10/13/2010 1724	1.0	1.0	325.2
Sulfate	0.050 Analysis Batch: 680-181103	U mg/L Date Analyzed: 09/23/2010 1541	0.050	1.0	353.2
Total Organic Cort	270 Analysis Batch: 680-182273	mg/L Date Analyzed: 10/07/2010 1222	100	20	375.4
State Sigurio Gal	4.4 Analysis Batch: 680-181644	mg/L Date Analyzed: 09/30/2010 1609	1.0	1.0	415.1
Analyte	Result	Qual Lista			
Alkalinity	480		RL	Dil	Method
Carbon Diovide Er	Analysis Batch: 680-181350	mg/L Date Analyzed: 09/28/2010 1212	5.0	1.0	310.1
Bioxide, Fil	Analysis Batch: 680-181350	mg/L Date Analyzed: 09/28/2010 1212	5.0	1.0	310.1

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Client: Solutia Inc.

Job Number: 680-61455-1 Sda Number: KPS060

		and the set of the set of the set of the set		TAXABLE IN CONTRACTOR OF THE OWNER	ong Number, KPS060
			General Chemistry		
Client Sample ID:	BSA-MW3D-F(0.2)-0910	-		
Lab Sample ID: Client Matrix:	680-61495-6 Water				Date Sampled: 09/22/2010 1130 Date Received: 09/23/2010 0917
Analyte		Result	Qual Unito		
Dissolved Organic	Carbon-Dissolved Analysis Batch: 680-	8.4 181927	Max Market Marke	RL 1.0	Dil Method 1.0 415.1

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Analytical Data

Job Number: 680-61455-1 Sdg Number: KPS060

		Ger	neral Chemistry			
Client Sample ID	CPA-MW3D-0910					
Lab Sample ID: Client Matrix:	680-61495-8 Water				Date Sampled: Date Received	09/22/2010 1410 : 09/23/2010 0917
	Result	Qual	Units	5		
Chloride	200		ma/l	KL	Dil	Method
Nitrata ao N	Analysis Batch: 680-182871	Date Analyzed	: 10/13/2010 1747	5.0	5.0	325.2
Sulfate	0.050 Analysis Batch: 680-181103	U Date Analyzed:	mg/L 09/23/2010 1542	0.050	1.0	353.2
Total Organia O	5.0 Analysis Batch: 680-182273	U Date Analyzed:	mg/L 10/07/2010 1123	5.0	1.0	375.4
rotar Organic Car	oon 11 Analysis Batch: 680-181644	Date Analyzed:	mg/L 09/30/2010 1654	1.0	1.0	415.1
Analyte	Result	Qual	Unite			
Alkalinity	610	Quui	onits	RL	Dil	Method
Carbon Disvide D	Analysis Batch: 680-181350	Date Analyzed:	09/28/2010 1223	5.0	1.0	310.1
	ee 51 Analysis Batch: 680-181350	Date Analyzed:	mg/L 09/28/2010 1223	5.0	1.0 ;	310.1

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			Gen	eral Chemistry			
Client Sample ID:	CPA-MW3D-F(0.2)-0910					
Lab Sample ID: Client Matrix:	680-61495-9 Water					Date Sampleo Date Receive	i: 09/22/2010 1410 d: 09/23/2010 0917
Analyte		Result	Qual	Units	RL	Dil	Method
Dissolved Organic Ca Ar	rbon-Dissolved nalysis Batch: 680-	15 -181927	" R <i>"</i> Date Analyzed	mg/L 10/04/2010 1137	1.0	1.0	415.1

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Client: Solutia Inc.

Job Number: 680-61455-1 Sdg Number: KPS060

General Chemistry

Client Sample ID:	BSA-MW2D-0910					
Lab Sample ID: Client Matrix:	680-61495-10 Water				Date Samplec	i: 09/22/2010 1520 d: 09/23/2010 0917
Analyte	Result	Qual	Units	DI		
Chloride	94		ma/l	RL 1.2	Dil	Method
	Analysis Batch: 680-182871	Date Analyzed:	10/13/2010 1724	1.0	1.0	325.2
Nitrate as N	0.050 Analysis Batch: 680-181103	U Date Analyzed:	mg/L 09/23/2010 1543	0.050	1.0	353.2
Sulfate	5.0 Analysis Batch: 680-182273	U Date Analyzed:	mg/L 10/07/2010 1123	5.0	1.0	375.4
Total Organic Carb	on 5.9 Analysis Batch: 680-181644	Date Analyzed:	mg/L 09/30/2010 1719	1.0	1.0	415.1
Analyte	Result	Qual	Unite	_ .		
Alkalinity	660	QUGI	Onits	RL	Dil	Method
Corbon Disside In	Analysis Batch: 680-181350	Date Analyzed:	119/L 09/28/2010 1233	5.0	1.0	310.1
Carbon Dioxide, Fre	ee 35 Analysis Batch: 680-181350	Date Analyzed:	mg/L 09/28/2010 1233	5.0	1.0	310.1

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Job Number: 680-61455-1 Sdg Number: KPS060

		General Chemistry			
Client Sample ID:	BSA-MW2D-F(0.2)-0910				
Lab Sample ID:	680-61495-11			Date Sampler	1. 09/22/2010 1520
Client Matrix;	Water			Date Receive	d: 09/23/2010 0917
۵.					0.0012010.0011
Analyte	Result	Qual Units	RL	Dil	Method
Dissolved Organic	Carbon-Dissolved 9.4	R' mg/L	1.0	1 ∩	A15.1
\$	Analysis Batch: 680-181927	Date Analyzed: 10/04/2010 1137		1.0	-15.1

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Job Number: 680-61455-1 Sdg Number: KPS060

		Gene	eral Chemistry			
Client Sample ID:	BSA-MW1S-0910					
Lab Sample ID: Client Matrix:	680-61495-12 Water				Date Sampled: Date Received:	09/22/2010 1630 09/23/2010 0917
Analyte	Resul	Qual	Units	RI	Dil	Method
Chloride	150 Analysis Batch: 680-182871	Date Analyzed:	mg/L 10/13/2010 1747	5.0	5.0	325.2
Nitrate as N	0.050 Analysis Batch: 680-181103	U Date Analyzed:	mg/L 09/23/2010 1544	0.050	1.0	353.2
Sulfate	5.0 Analysis Batch: 680-182273	U Date Analyzed:	mg/L 10/07/2010 1041	5.0	1.0	375.4
Total Organic Carb	on 7.6 Analysis Batch: 680-181644	Date Analyzed:	mg/L 09/30/2010 1736	1.0	1.0	415.1
Analyte	Result	Qual	Units	RI		Mathed
Alkalinity	830 Analysis Batch: 680-181350	Date Analyzed:	mg/L 09/28/2010 1245	5.0	1.0	310.1
Carbon Dioxide, Fr	ee 32 Analysis Batch: 680-181350	Date Analyzed:	mg/L 09/28/2010 1245	5.0	1.0	310.1

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						A	nalytical Data
Client: Solutia	Inc.			NET 2019 CONTRACTOR OF CONT		Job Numb Sdg I	ber: 680-61455-1 Number: KPS060
			Gen	eral Chemistry			
Client Sample ID:	BSA-MW1S-F(0	.2)-0910					
Lab Sample ID:	680-61495-13					Date Sampled	1: 09/22/2010 1630
Client Matrix:	Water					Date Receive	d: 09/23/2010 0917
Analyte		Result	Qual	Units	RL	Dil	Method
Dissolved Organic	c Carbon-Dissolved Analysis Batch: 680-	14 181927	R // Date Analyzed	mg/L 10/04/2010 1137	1.0	1.0	415.1

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Client: Solutia Inc.

Job Number: 680-61455-1 Sdg Number: KPS060

General Chemistry

Client Sample ID:	CPA-MW2D-0910					
Lab Sample ID: Client Matrix:	680-61543-1 Water				Date Sampled Date Received	: 09/23/2010 0800 d: 09/24/2010 0915
Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	70		mg/L	1.0	1.0	325.2
	Analysis Batch: 680-182871	Date Analyzed:	10/13/2010 1724			0 20 0 . 22
Nitrate as N	0.050	U	mg/L	0.050	1.0	353.2
	Analysis Batch: 680-181164	Date Analyzed:	09/24/2010 1605			00010
Sulfate	5.0	U	mg/L	5.0	1.0	375.4
	Analysis Batch: 680-182273	Date Analyzed:	10/07/2010 1041			
Total Organic Carb	oon 11		mg/L	1.0	1.0	415.1
	Analysis Batch: 680-181644	Date Analyzed:	09/30/2010 1752			
Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity	550		mg/L	5.0	10	310.1
	Analysis Batch: 680-181350	Date Analyzed:	09/28/2010 1330		1.0	010.1
Carbon Dioxide, Fr	ee 27		mg/L	5.0	1.0	310.1
	Analysis Batch: 680-181350	Date Analyzed:	09/28/2010 1330			0.0.1

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Job Number: 680-61455-1 Sdg Number: KPS060

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•			Gen	eral Chemistry			
Client Sample ID:	CPA-MW2D-F(0	.2)-0910					
Lab Sample ID: Client Matrix:	680-61543-2 Water					Date Sampled	I: 09/23/2010 0800 d: 09/24/2010 0915
Analyte		Result	Qual	Units	RL	Dil	Method
Dissolved Organic Ca	arbon-Dissolved \nalysis Batch: 680-	86 181927	" R " Date Analyzed:	mg/L 10/04/2010 1137	1.0	1.0	415.1

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Client: Solutia Inc.

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		General (Chemistry		
Client Sample ID:	CPA-MW1D-0910				
Lab Sample ID: Client Matrix:	680-61543-4 Water			Date Sampled: Date Received:	09/23/2010 0920 09/24/2010 0915
Analyte	Result	Qual Uni	its pi	Dil	8.6.11 1
Chloride	140 Analysis Batch: 680-182871	mg/ Date Analyzed: 10/1	/L 10 3/2010 1729	10	325.2
Nitrate as N	1.0 Analysis Batch: 680-181164	U mg/ Date Analyzed: 09/2	/L 1.0 24/2010 1605	20	353.2
Sulfate	100 Analysis Batch: 680-182273	U mg/ Date Analyzed: 10/0	/L 100	20	375.4
Total Organic Carb	oon 15 Analysis Batch: 680-181644	/mg Date Analyzed: 09/3	/L 1.0 0/2010 1808	1.0	415.1
Analyte	Result	Qual Unit	ts Di		
Alkalinity	990 Analysis Batch: 680-181350	Date Analyzed: 09/28	L 5.0 8/2010 1343	Dil 1.0	Method 310.1
Carbon Dioxide, Fr	ee 5.0 Analysis Batch: 680-181350	U mg/l Date Analyzed: 09/28	L 5.0 8/2010 1343	1.0	310.1

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Job Number: 680-61455-1 Sdg Number: KPS060

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¢			Gen	eral Chemistry			
Client Sample ID:	CPA-MW1D-F().2)-0910					
Lab Sample ID: Client Matrix:	680-61543-5 Water					Date Sampled Date Received	: 09/23/2010 0920 d: 09/24/2010 0915
Analyte		Result	Qual	Units	RL	Dil	Method
Dissolved Organic Ca	arbon-Dissolved Analysis Batch: 680-	85 181927	Date Analyzed:	mg/L 10/04/2010 1137	1.0	1.0	415.1

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DATA REPORTING QUALIFIERS

Client: Solutia Inc.

Job Number: 680-61455-1 Sdg Number: KPS060

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Indicates the analyte was analyzed for but not detected.
GC/MS Semi VOA		
	U	Indicates the analyte was analyzed for but not detected.
	F	MS or MSD exceeds the control limits
	F	RPD of the MS and MSD exceeds the control limits
	Х	Surrogate is outside control limits
	D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
GC VOA		
	U	Indicates the analyte was analyzed for but not detected.
Metals		
	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.
General Chemistry		
	U	Indicates the analyte was analyzed for but not detected.



QUALITY CONTROL RESULTS

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Job Number: 680-61455-1 Sdg Number: KPS060

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prop Betch
GC/MS VOA				metriou	Flep Batch
Analysis Batch:680-1814	38				
LCS 680-181438/21	Lab Control Sample	т	Water	8260B	
LCSD 680-181438/22	Lab Control Sample Duplicate	т	Water	8260B	
MB 680-181438/24	Method Blank	Т	Water	8260B	
680-61543-1	CPA-MW2D-0910	T	Water	8260B	
680-61543-3FD	CPA-MW2D-0910-AD	т	Water	8260B	
680-61543-4	CPA-MW1D-0910	Т	Water	8260B	
680-61543-6TB	Trip Blank #3	T	Water	8260B	
680-61543-7	BSA-MW1S-0910	Т	Water	8260B	
Analysis Batch:680-18157	78				
LCS 680-181578/5	Lab Control Sample	т	Water	8260D	
LCSD 680-181578/6	Lab Control Sample Duplicate	T	Water	8260B	
MB 680-181578/8	Method Blank	т	Water	8260B	
680-61455-1	CPA-MW5D-0910	Ť	Water	8260P	
680-61455-3	BSA-MW5D-0910	т	Water	8260B	
680-61455-5	Trip Blank #1	т	Water	8260B	
680-61495-1	BSA-MW4D-0910	Ť	Water	82608	
680-61495-3	CPA-MW4D-0910	Ť	Water	8260B	
680-61495-5	BSA-MW3D-0910	Ť	Water	8260B	
680-61495-7EB	BSA-MW3D-0910-EB	Ť	Water	8260B	
680-61495-8	CPA-MW3D-0910	T	Water	8260B	
680-61495-10	BSA-MW2D-0910	Ť	Water	8260B	
680-61495-12	BSA-MW1S-0910	T	Water	8260B	
680-61495-14TB	Trip Blank 2	Т	Water	8260B	
Analysis Batch:680-18178	0				
LCS 680-181780/5	Lab Control Sample	т	Water	82600	
LCSD 680-1\$1780/6	Lab Control Sample Duplicate	т Т	Water	0200B	
MB 680-181780/8	Method Blank	Ť	Water	02000	
680-61455-3MS	Matrix Spike	т	Water	020UD 9260D	
680-61455-3MSD	Matrix Spike Duplicate	Ť	Water	8260B	

Report Basis

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Job Number: 680-61455-1 Sdg Number: KPS060

QC Association Summary

Lah Camula ID		Report			
Lab Sample ID	Client Sample ID	Basis	Client Matrix	Method	Prep Batch
GC/MS Semi VOA					
Prep Batch: 680-180934		99999999999999999999999999999999999999	1199 (1996) - Contra		
LCS 680-180934/12-A	Lab Control Sample	т	Water	3520C	
MB 680-180934/11-A	Method Blank	Т	Water	3520C	
680-61455-1	CPA-MW5D-0910	Т	Water	3520C	
680-61455-3	BSA-MW5D-0910	Т	Water	3520C	
680-61455-3MS	Matrix Spike	Т	Water	3520C	
680-61455-3MSD	Matrix Spike Duplicate	Т	Water	3520C	
680-61495-1	BSA-MW4D-0910	Т	Water	3520C	
680-61495-3	CPA-MW4D-0910	т	Water	35200	
680-61495-5	BSA-MW3D-0910	т	Water	35200	
680-61495-7EB	BSA-MW3D-0910-EB	Т	Water	35200	
680-61495-8	CPA-MW3D-0910	T	Water	35200	
680-61495-10	BSA-MW2D-0910	т	Water	35200	
680-61495-12	BSA-MW1S-0910	т т	Water	35200	
		I.	Valei	35200	
Prep Batch: 680-181388					
LCS 680-181388/15-A	Lab Control Sample	т	Water	35200	
MB 680-181388/14-A	Method Blank	т	Water	35200	
680-61543-1	CPA-MW2D-0910	Т	Water	35200	
680-61543-1MS	Matrix Spike	T	Water	35200	
680-61543-1MSD	Matrix Spike Duplicate	T	Water	35200	
680-61543-3FD	CPA-MW2D-0910-AD	T	Water	35200	
680-61543-4	CPA-MW1D-0910	Т	Water	3520C	
Analysis Batch:680-18141	6				
LCS 680-180934/12-A	Lab Control Sample	т	Water	92700	000 40000 4
MB 680-180934/11-A	Method Blank	T	Water	02700	680-180934
680-61455-1	CPA-MW5D-0910	T	Water	82700	680-180934
680-61455-3	BSA-MW5D-0910	i T	VValer	82700	680-180934
680-61455-3MS	Matrix Spike	ו ד	VValer Mater	82700	680-180934
580-61455-3MSD	Matrix Spike Duplicate	ו ד	Water	82700	680-180934
680-61495-1	BSA-MW//D-0910	ן דר	vvater	8270C	680-180934
680-61495-3		1 	vvater	8270C	680-180934
80-61495-5	BSA-MW/3D-0910	1 	vvater Mater	8270C	680-180934
580-61495-7EB	BSA-MW3D 0010 EP	1 	vvater	8270C	680-180934
80-61495-8		1	vvater	8270C	680-180934
380-61495-10			Water	8270C	680-180934
80-61495-12	BSA-WW2D-0910	- -	Water	8270C	680-180934
00-01400-12	BSA-1010015-0910	I	Water	8270C	680-180934
Analysis Batch:680-181687	7				
.CS 680-181388/15-A	Lab Control Sample	т	Water	8270C	680-181399
/IB 680-181388/14-A	Method Blank	т	Water	82700	680-101000
80-61543-1	CPA-MW2D-0910	т	Water	82700	000-101300
80-61543-1MS	Matrix Spike	, Т	Water	82700	000-101300
80-61543-3FD	CPA-MW2D-0910-AD	' T	Mater	92700	000-101388
		I	vvalci	02700	680-181388

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Job Number: 680-61455-1 Sdg Number: KPS060

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS Semi VOA					
Analysis Batch:680-181862 680-61543-1MSD 680-61543-4	Matrix Spike Duplicate CPA-MW1D-0910	T T	Water Water	8270C 8270C	680-181388 680-181388

Report Basis

T = Total ·

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Job Number: 680-61455-1 Sdg Number: KPS060

QC Association Summary

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Lah Sample ID	Client Comple ID	Report			
	Chefit Sample iD	Basis	Client Matrix	Method	Prep Batch
GC VUA					
Analysis Batch:680-18177	2				
LCS 680-181772/23	Lab Control Sample	Т	Water	RSK-175	
LCSD 680-181772/25	Lab Control Sample Duplicate	Т	Water	RSK-175	
MB 680-181772/24	Method Blank	Т	Water	RSK-175	
680-61495-1	BSA-MW4D-0910	т	Water	RSK-175	
680-61495-3	CPA-MW4D-0910	т	Water	RSK-175	
680-61495-5	BSA-MW3D-0910	Т	Water	RSK-175	
680-61495-7EB	BSA-MW3D-0910-EB	Т	Water	RSK-175	
680-61495-8	CPA-MW3D-0910	Т	Water	RSK-175	
680-61495-10	BSA-MW2D-0910	т	Water	RSK-175	
680-61495-12	BSA-MW1S-0910	Т	Water	RSK-175	
Analysis Batch:680-18177	3				
LCS 680-181773/9	Lab Control Sample	т	Water	RSK-175	
_CSD 680-181773/11	Lab Control Sample Duplicate	т	Water	DOK-175	
MB 680-181773/10	Method Blank	Т	Water	DOK 175	
580-61495-3	CPA-MW4D-0910	· T	Water	NON-170 DOK 175	
680-61495-8	CPA-MW3D-0910	Ť	Water	ROR-170	
580-61495-10	BSA-MW2D-0910	, т	Water	NON-170 DOK 175	
80-61495-12	BSA-MW1S-0910	Ť	Water	RSK-175 RSK-175	
Snalveie Ratch:600 10101	7				
-CS 680-181917/22	l ab Control Samplo	т			
CSD 680-181917/24	Lab Control Sample Duplicato	ו ד	vvater	RSK-175	
/B 680-181917/23	Method Blank	ן ד	vvater	RSK-175	
80-61455-1		ן די	vvater	RSK-175	
80-61455-3	BSA-MW/5D-0910		vvater	RSK-175	
80-61543-1		 	Water	RSK-175	
80-61543-4		1	Water	RSK-175	
00-010-0-4	CPA-MVV1D-0910	I	Water	RSK-175	
Analysis Batch:680-181925	5				
.CS 680-181925/7	Lab Control Sample	т	Water	RSK-175	
CSD 680-181925/9	Lab Control Sample Duplicate	Т	Water	RSK-175	
IB 680-181925/8	Method Blank	т	Water	RSK-175	
80-61455-3	BSA-MW5D-0910	т	Water	RSK-175	
80-61543-1	CPA-MW2D-0910	Т	Water	RSK-175	
80-61543-4	CPA-MW1D-0910	Т	Water	RSK-175	

Report Basis

T = Total ·

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Job Number: 680-61455-1 Sdg Number: KPS060

QC Association Summary

Lab Sample ID Client Sample ID Basis Client Matrix Method Prep Batch Metals Prep Batch: 680-182835/19-A Lab Control Sample R Water 3005A MB 680-182835/19-A Lab Control Sample R Water 3005A 680-6182835/18-A Method Blank R Water 3005A 680-61455-1 CPA-MW5D-0910 R Water 3005A 680-61455-1MS Matrix Spike Duplicate R Water 3005A 680-61455-3 BSA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-4 BSA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-3 BSA-MW4D-0910 R Water 3005A 680-61495-1 BSA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-3 CPA-MW4D-0910 R Water 3005A 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A 680-6
Metals Prep Batch: 680-182835 LCS 680-182835/19-A Lab Control Sample R Water 3005A MB 680-182835/18-A Method Blank R Water 3005A 680-61455-11 CPA-MWSD-0910 R Water 3005A 680-61455-11 CPA-MWSD-0910 R Water 3005A 680-61455-1MS Matrix Spike Duplicate R Water 3005A 680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-3 BSA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-4 BSA-MW4D-0910 R Water 3005A 680-61495-2 BSA-MW4D-0910 R Water 3005A 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-3 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A
Prep Batch: 680-182835 LCS 680-182835/19-A Lab Control Sample R Water 3005A MB 680-182835/18-A Method Blank R Water 3005A 680-61455-1 CPA-MW5D-0910 R Water 3005A 680-61455-1MS Matrix Spike R Water 3005A 680-61455-1MSD Matrix Spike Duplicate R Water 3005A 680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-3 BSA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-4 BSA-MW5D-F(0.2)-0910 D Water 3005A 680-61495-1 BSA-MW4D-G910 R Water 3005A 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-3 CPA-MW4D-G910 R Water 3005A 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-5 BSA-MW3D-910 R Water 3005A 680-61495-6 <
LCS 680-182835/19-A Lab Control Sample R Water 3005A MB 680-182835/18-A Method Blank R Water 3005A 680-61455-1 CPA-MW5D-0910 R Water 3005A 680-61455-1MS Matrix Spike R Water 3005A 680-61455-1MSD Matrix Spike Duplicate R Water 3005A 680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-3 BSA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-4 BSA-MW4D-0910 R Water 3005A 680-61495-5 BSA-MW4D-910 R Water 3005A 680-61495-3 CPA-MW4D-9010 R Water 3005A 680-61495-3 CPA-MW3D-910 R Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A 680-61495-5 BSA-MW3D-0910-EB R Water 30
MB 680-182835/18-A Method Blank R Water 3005A 680-61455-1 CPA-MW5D-0910 R Water 3005A 680-61455-11MS Matrix Spike R Water 3005A 680-61455-1MSD Matrix Spike Duplicate R Water 3005A 680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-3 BSA-MW5D-0910 R Water 3005A 680-61455-4 BSA-MW5D-0910 D Water 3005A 680-61495-1 BSA-MW4D-0910 R Water 3005A 680-61495-2 BSA-MW4D-910 R Water 3005A 680-61495-3 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-3 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-5 BSA-MW3D-9010-EB R Water 3005A 680-61495-7EB BSA-MW3D-9010-EB R Water
680-61455-1 CPA-MW5D-0910 R Water 3005A 680-61455-1MS Matrix Spike R Water 3005A 680-61455-1MSD Matrix Spike Duplicate R Water 3005A 680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-3 BSA-MW5D-9010 R Water 3005A 680-61455-4 BSA-MW5D-F(0.2)-0910 D Water 3005A 680-61495-1 BSA-MW4D-0910 R Water 3005A 680-61495-2 BSA-MW4D-910 R Water 3005A 680-61495-3 CPA-MW4D-910 R Water 3005A 680-61495-3 CPA-MW4D-9010 R Water 3005A 680-61495-4 CPA-MW4D-9010 R Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A 680-61495-6 BSA-MW3D-910-EB R Water 3005A 680-61495-7EB BSA-MW3D-9010 R Water 3005A
680-61455-1MS Matrix Spike R Water 3005A 680-61455-1MSD Matrix Spike Duplicate R Water 3005A 680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-3 BSA-MW5D-0910 R Water 3005A 680-61455-4 BSA-MW5D-910 R Water 3005A 680-61495-1 BSA-MW4D-0910 R Water 3005A 680-61495-2 BSA-MW4D-0910 R Water 3005A 680-61495-3 CPA-MW4D-910 R Water 3005A 680-61495-3 CPA-MW4D-910 R Water 3005A 680-61495-3 CPA-MW4D-910 R Water 3005A 680-61495-4 CPA-MW4D-910 R Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A 680-61495-6 BSA-MW3D-910-EB R Water 3005A 680-61495-8 CPA-MW3D-F(0.2)-0910 D Water 3005A
680-61455-1MSD Matrix Spike Duplicate R Water 3005A 680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-3 BSA-MW5D-0910 R Water 3005A 680-61455-4 BSA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-4 BSA-MW4D-0910 R Water 3005A 680-61495-1 BSA-MW4D-0910 R Water 3005A 680-61495-2 BSA-MW4D-0910 R Water 3005A 680-61495-3 CPA-MW4D-0910 R Water 3005A 680-61495-3 CPA-MW4D-0910 R Water 3005A 680-61495-3 CPA-MW4D-0910 R Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A 680-61495-6 BSA-MW3D-0910-EB R Water 3005A 680-61495-7EB BSA-MW2D-60.2)-0910 D Water 3005A 680-61495-10 BSA-MW2D-F(0.2)-0910 D Water 3005
680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 3005A 680-61455-3 BSA-MW5D-0910 R Water 3005A 680-61455-4 BSA-MW5D-F(0.2)-0910 D Water 3005A 680-61495-1 BSA-MW4D-0910 R Water 3005A 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-3 CPA-MW4D-0910 R Water 3005A 680-61495-4 CPA-MW4D-0910 R Water 3005A 680-61495-3 CPA-MW4D-910 R Water 3005A 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A 680-61495-6 BSA-MW3D-0910-EB R Water 3005A 680-61495-7EB BSA-MW3D-0910 R Water 3005A 680-61495-8 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-10 BSA-MW2D-9(0.2)-0910 R Water
680-61455-3 BSA-MW5D-0910 R Water 3005A 680-61455-4 BSA-MW5D-F(0.2)-0910 D Water 3005A 680-61495-1 BSA-MW4D-0910 R Water 3005A 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-3 CPA-MW4D-910 R Water 3005A 680-61495-4 CPA-MW4D-910 R Water 3005A 680-61495-3 CPA-MW4D-910 R Water 3005A 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-5 BSA-MW3D-910 R Water 3005A 680-61495-6 BSA-MW3D-910-EB R Water 3005A 680-61495-7EB BSA-MW3D-910-EB R Water 3005A 680-61495-8 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-10 BSA-MW2D-910 R Water 3005A 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water
680-61455-4 BSA-MW5D-F(0.2)-0910 D Water 3005A 680-61495-1 BSA-MW4D-0910 R Water 3005A 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-3 CPA-MW4D-0910 R Water 3005A 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A 680-61495-6 BSA-MW3D-9010 R Water 3005A 680-61495-6 BSA-MW3D-9010-EB R Water 3005A 680-61495-7EB BSA-MW3D-0910-EB R Water 3005A 680-61495-8 CPA-MW3D-0910 R Water 3005A 680-61495-9 CPA-MW3D-910 R Water 3005A 680-61495-10 BSA-MW2D-9010 D Water 3005A 680-61495-11 BSA-MW2D-9010 R Water 3005A 680-61495-12 BSA-MW2D-9010 R Water 3005A 680-61495-12 BSA-MW1S-0910 R Water 3005A
680-61495-1 BSA-MW4D-0910 R Water 3005A 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-3 CPA-MW4D-0910 R Water 3005A 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A 680-61495-6 BSA-MW3D-0910 R Water 3005A 680-61495-7EB BSA-MW3D-0910-EB R Water 3005A 680-61495-8 CPA-MW3D-0910 R Water 3005A 680-61495-7EB BSA-MW3D-0910-EB R Water 3005A 680-61495-7EB BSA-MW3D-0910 R Water 3005A 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-10 BSA-MW2D-0910 R Water 3005A 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 3005A 680-61495-12 BSA-MW1S-0910 R Water 3005A 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water
680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-3 CPA-MW4D-910 R Water 3005A 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A 680-61495-6 BSA-MW3D-0910 R Water 3005A 680-61495-7EB BSA-MW3D-0910-EB R Water 3005A 680-61495-7EB BSA-MW3D-0910 R Water 3005A 680-61495-7EB BSA-MW3D-0910-EB R Water 3005A 680-61495-7EB BSA-MW3D-0910 R Water 3005A 680-61495-8 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-10 BSA-MW2D-9010 R Water 3005A 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 3005A 680-61495-12 BSA-MW1S-0910 R Water 3005A 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water </td
680-61495-3 CPA-MW4D-0910 R Water 3005A 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A 680-61495-6 BSA-MW3D-0910 D Water 3005A 680-61495-7EB BSA-MW3D-0910-EB R Water 3005A 680-61495-7EB BSA-MW3D-0910 R Water 3005A 680-61495-8 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-10 BSA-MW2D-F(0.2)-0910 D Water 3005A 680-61495-11 BSA-MW1S-0910 R Water 3005A 680-61495-12 BSA-MW1S-0910 R Water 3005A 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water
680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 3005A 680-61495-5 BSA-MW3D-0910 R Water 3005A 680-61495-6 BSA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-7EB BSA-MW3D-0910-EB R Water 3005A 680-61495-7EB BSA-MW3D-0910 R Water 3005A 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-10 BSA-MW2D-0910 R Water 3005A 680-61495-11 BSA-MW1S-0910 D Water 3005A 680-61495-12 BSA-MW1S-0910 R Water 3005A 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 3005A
680-61495-5 BSA-MW3D-0910 R Water 3005A 680-61495-6 BSA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-7EB BSA-MW3D-0910-EB R Water 3005A 680-61495-8 CPA-MW3D-0910 R Water 3005A 680-61495-9 CPA-MW3D-0910 R Water 3005A 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-10 BSA-MW2D-0910 R Water 3005A 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 3005A 680-61495-12 BSA-MW1S-0910 R Water 3005A 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 3005A
680-61495-6 BSA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-7EB BSA-MW3D-0910-EB R Water 3005A 680-61495-8 CPA-MW3D-0910 R Water 3005A 680-61495-9 CPA-MW3D-0910 D Water 3005A 680-61495-10 BSA-MW2D-0910 D Water 3005A 680-61495-11 BSA-MW2D-0910 R Water 3005A 680-61495-12 BSA-MW1S-0910 D Water 3005A 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 3005A
680-61495-7EB BSA-MW3D-0910-EB R Water 3005A 680-61495-8 CPA-MW3D-0910 R Water 3005A 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-10 BSA-MW2D-0910 R Water 3005A 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 3005A 680-61495-12 BSA-MW1S-0910 D Water 3005A 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 3005A
680-61495-8 CPA-MW3D-0910 R Water 3005A 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-10 BSA-MW2D-0910 R Water 3005A 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 3005A 680-61495-12 BSA-MW1S-0910 D Water 3005A 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 3005A
680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 3005A 680-61495-10 BSA-MW2D-0910 R Water 3005A 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 3005A 680-61495-12 BSA-MW1S-0910 D Water 3005A 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 3005A
680-61495-10 BSA-MW2D-0910 R Water 3005A 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 3005A 680-61495-12 BSA-MW1S-0910 R Water 3005A 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 3005A
680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 3005A 680-61495-12 BSA-MW1S-0910 R Water 3005A 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 3005A
680-61495-12 BSA-MW1S-0910 R Water 3005A 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 3005A
680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 30054
Prep Batch: 680-182836
LCS 680-182836/20-A Lab Control Sample R Water 3005A
MB 680-182836/19-A Method Blank R Water 3005A
680-61543-1 CPA-MW2D-0910 R Water 3005A
680-61543-1MS Matrix Spike R Water 3005A
680-61543-1MSD Matrix Spike Duplicate R Water 3005A
680-61543-2 · CPA-MW2D-F(0.2)-0910 D Water 3005A
680-61543-4 CPA-MW1D-0910 R Water 3005A
680-61543-5 CPA-MW1D-F(0.2)-0910 D Water 3005A

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Job Number: 680-61455-1 Sdg Number: KPS060

QC Association Summary

Lab Sample ID Client Sample ID Basis Client Matrix Method Prep Batch Metais			Report			
Metals Analysis Batch:680-18283/PAA Lab Control Sample R Water 6010B 680-182835/ MB 680-182835/18-A Method Blank R Water 6010B 680-182836 LCS 680-182836/20-A Lab Control Sample R Water 6010B 680-182836 LGS 680-182836/20-A Lab Control Sample R Water 6010B 680-182836 680-61455-1 CPA-MW5D-0910 R Water 6010B 680-182835 680-61455-1MS Matrix Spike R Water 6010B 680-182835 680-61455-1MSD Matrix Spike R Water 6010B 680-182835 680-61455-1MSD Matrix Spike R Water 6010B 680-182835 680-61455-1 MSA-MW5D-P(0.2)-0910 D Water 6010B 680-182835 680-61455-4 BSA-MW4D-F(0.2)-0910 R Water 6010B 680-182835 680-61495-4 CPA-MW4D-F(0.2)-0910 R Water 6010B 680-182835 680-614	Lab Sample ID ·	Client Sample ID	Basis	Client Matrix	Method	Prep Batch
Analysis Batch:680-182127 LCS 680-182835/19-A Lab Control Sample R Water 6010B 680-182835 MB 680-182835/19-A Method Blank R Water 6010B 680-182835 LCS 680-182835/19-A Lab Control Sample R Water 6010B 680-182835 LCS 680-182835/20-A Lab Control Sample R Water 6010B 680-182835 680-61455-1 CPA-MW5D-0910 R Water 6010B 680-182835 680-61455-1MS Matrix Spike Duplicate R Water 6010B 680-182835 680-61455-1MSD Matrix Spike Duplicate R Water 6010B 680-182835 680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-2 CPA-MW4D-910 R Water 6010B 680-182835 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 6010B 680-182835	Metals					
LCS 680-182835/19-A Lab Control Sample R Water 6010B 680-182835 MB 680-182836/19-A Method Blank R Water 6010B 680-182835 LCS 680-182836/19-A Lab Control Sample R Water 6010B 680-182835 LCS 680-182836/19-A Method Blank R Water 6010B 680-182835 680-61455-1 CPA-MWSD-0910 R Water 6010B 680-182835 680-61455-1MSD Matrix Spike Duplicate R Water 6010B 680-182835 680-61455-2 CPA-MWSD-F(0.2)-0910 D Water 6010B 680-182835 680-61455-3 BSA-MWSD-F(0.2)-0910 R Water 6010B 680-182835 680-61495-4 BSA-MW4D-F(0.2)-0910 R Water 6010B 680-182835 680-61495-2 BSA-MW4D-F(0.2)-0910 R Water 6010B 680-182835 680-61495-4 BSA-MW4D-910 R Water 6010B 680-182835 680-61495-5 BSA-MW3D-F(0.2)-0910 <td>Analysis Batch:680-1831</td> <td>27</td> <td></td> <td></td> <td></td> <td></td>	Analysis Batch:680-1831	27				
MB 680-182835/18-A Method Blank R Water 6010B 680-182835 LCS 680-182836/19-A Lab Control Sample R Water 6010B 680-182835 MB 680-182836/19-A Method Blank R Water 6010B 680-182835 680-61455-1 CPA-MWSD-0910 R Water 6010B 680-182835 680-61455-1MS Matrix Spike R Water 6010B 680-182835 680-61455-1MSD Matrix Spike Duplicate R Water 6010B 680-182835 680-61455-3 BSA-MWSD-0910 D Water 6010B 680-182835 680-61455-4 BSA-MW4D-910 R Water 6010B 680-182835 680-61495-2 BSA-MW4D-910 R Water 6010B 680-182835 680-61495-4 BSA-MW4D-910 R Water 6010B 680-182835 680-61495-5 BSA-MW3D-910 R Water 6010B 680-182835 680-61495-5 BSA-MW3D-910 R Water	LCS 680-182835/19-A	Lab Control Sample	R	Water	6010B	680-182835
LCS 680-182836/20-A Lab Control Sample R Water 6010B 680-182836 MB 680-182836/20-A Method Blank R Water 6010B 680-182836 680-61455-1 CPA-MW5D-0910 R Water 6010B 680-182835 680-61455-1MS Matrix Spike R Water 6010B 680-182835 680-61455-1MSD Matrix Spike Duplicate R Water 6010B 680-182835 680-61455-1MSD Matrix Spike Duplicate R Water 6010B 680-182835 680-61455-3 BSA-MW5D-F(0.2)-0910 D Water 6010B 680-182835 680-61455-4 BSA-MW4D-F(0.2)-0910 R Water 6010B 680-182835 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-4 CPA-MW4D-910 R Water 6010B 680-182835 680-61495-5 BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-6 BSA-MW3D-0910 R	MB 680-182835/18-A	Method Blank	R	Water	6010B	680-182835
MB 680-182836/19-A Method Blank R Water 6010B 680-182836 680-61455-1 CPA-MW5D-0910 R Water 6010B 680-182835 680-61455-1MS Matrix Spike Duplicate R Water 6010B 680-182835 680-61455-1MSD Matrix Spike Duplicate R Water 6010B 680-182835 680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 6010B 680-182835 680-61455-3 BSA-MW5D-0910 R Water 6010B 680-182835 680-61455-4 BSA-MW4D-9010 R Water 6010B 680-182835 680-61495-2 BSA-MW4D-9010 R Water 6010B 680-182835 680-61495-4 CPA-MW4D-9010 R Water 6010B 680-182835 680-61495-5 BSA-MW4D-9010 R Water 6010B 680-182835 680-61495-4 CPA-MW4D-9010 R Water 6010B 680-182835 680-61495-5 BSA-MW3D-0910-EB R Water	LCS 680-182836/20-A	Lab Control Sample	R	Water	6010B	680-182836
680-61455-1 CPA-MW5D-0910 R Water 6010B 680-182835 680-61455-1MS Matrix Spike R Water 6010B 680-182835 680-61455-1MSD Matrix Spike Duplicate R Water 6010B 680-182835 680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 6010B 680-182835 680-61455-3 BSA-MW5D-9010 R Water 6010B 680-182835 680-61455-4 BSA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-1 BSA-MW4D-9010 R Water 6010B 680-182835 680-61495-2 BSA-MW4D-9010 R Water 6010B 680-182835 680-61495-4 CPA-MW4D-9010 R Water 6010B 680-182835 680-61495-5 BSA-MW3D-910 R Water 6010B 680-182835 680-61495-6 BSA-MW3D-9010 R Water 6010B 680-182835 680-61495-7EB BSA-MW3D-9010 R Water 6	MB 680-182836/19-A	Method Blank	R	Water	6010B	680-182836
680-61455-1MS Matrix Spike R Water 6010B 680-182835 680-61455-1MSD Matrix Spike Duplicate R Water 6010B 680-182835 680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 6010B 680-182835 680-61455-3 BSA-MW5D-F(0.2)-0910 D Water 6010B 680-182835 680-61455-4 BSA-MW4D-0910 R Water 6010B 680-182835 680-61495-1 BSA-MW4D-910 R Water 6010B 680-182835 680-61495-2 BSA-MW4D-910 R Water 6010B 680-182835 680-61495-4 CPA-MW4D-910 R Water 6010B 680-182835 680-61495-5 BSA-MW3D-910 R Water 6010B 680-182835 680-61495-6 BSA-MW3D-910.EB R Water 6010B 680-182835 680-61495-7EB BSA-MW3D-910.EB R Water 6010B 680-182835 680-61495-7EB BSA-MW3D-910.EB R Water	680-61455-1	CPA-MW5D-0910	R	Water	6010B	680-182835
680-61455-1MSD Matrix Spike Duplicate R Water 6010B 680-182835 680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 6010B 680-182835 680-61455-3 BSA-MW5D-0910 R Water 6010B 680-182835 680-61455-4 BSA-MW5D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-1 BSA-MW4D-0910 R Water 6010B 680-182835 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-5 BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-5 BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-6 BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-7EB BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-9* CPA-MW3D-F(0.2)-0910 D Wa	680-61455-1MS	Matrix Spike	R	Water	6010B	680-182835
680-61455-2 CPA-MW5D-F(0.2)-0910 D Water 6010B 680-182835 680-61455-3 BSA-MW5D-0910 R Water 6010B 680-182835 680-61455-4 BSA-MW5D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-1 BSA-MW4D-9010 R Water 6010B 680-182835 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-4 CPA-MW4D-9010 R Water 6010B 680-182835 680-61495-4 CPA-MW4D-9010 R Water 6010B 680-182835 680-61495-5 BSA-MW3D-9010 R Water 6010B 680-182835 680-61495-6 BSA-MW3D-9010 D Water 6010B 680-182835 680-61495-7EB BSA-MW3D-9010-EB R Water 6010B 680-182835 680-61495-9t CPA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-10 BSA-MW2D-9010 R Water	680-61455-1MSD	Matrix Spike Duplicate	R	Water	6010B	680-182835
680-61455-3 BSA-MW5D-0910 R Water 6010B 680-182835 680-61455-4 BSA-MW5D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-1 BSA-MW4D-0910 R Water 6010B 680-182835 680-61495-2 BSA-MW4D-910 D Water 6010B 680-182835 680-61495-4 CPA-MW4D-0910 R Water 6010B 680-182835 680-61495-5 BSA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-5 BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-6 BSA-MW3D-910-0910 D Water 6010B 680-182835 680-61495-7EB BSA-MW3D-0910-EB R Water 6010B 680-182835 680-61495-7E CPA-MW3D-0910 R Water 6010B 680-182835 680-61495-7E CPA-MW3D-9100 R Water 6010B 680-182835 680-61495-91 CPA-MW3D-9100 R Water 6010	680-61455-2	CPA-MW5D-F(0.2)-0910	D	Water	6010B	680-182835
680-61455-4 BSA-MW5D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-1 BSA-MW4D-0910 R Water 6010B 680-182835 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-3 CPA-MW4D-910 R Water 6010B 680-182835 680-61495-4 CPA-MW4D-910 R Water 6010B 680-182835 680-61495-5 BSA-MW3D-910 D Water 6010B 680-182835 680-61495-6 BSA-MW3D-910-EB R Water 6010B 680-182835 680-61495-7EB BSA-MW3D-9010 R Water 6010B 680-182835 680-61495-7 CPA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-7 CPA-MW3D-F(0.2)-0910 R Water 6010B 680-182835 680-61495-7 CPA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-10 BSA-MW2D-F(0.2)-0910 D Water <td>680-61455-3</td> <td>BSA-MW5D-0910</td> <td>R</td> <td>Water</td> <td>6010B</td> <td>680-182835</td>	680-61455-3	BSA-MW5D-0910	R	Water	6010B	680-182835
680-61495-1 BSA-MW4D-0910 R Water 6010B 680-182835 680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-3 CPA-MW4D-0910 R Water 6010B 680-182835 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-5 BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-6 BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-6 BSA-MW3D-910-EB R Water 6010B 680-182835 680-61495-7EB BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-8 CPA-MW3D-910 R Water 6010B 680-182835 680-61495-9 CPA-MW3D-910 R Water 6010B 680-182835 680-61495-10 BSA-MW2D-910 R Water 6010B 680-182835 680-61495-11 BSA-MW2D-910 R Water 6010B	680-61455-4	BSA-MW5D-F(0.2)-0910	D	Water	6010B	680-182835
680-61495-2 BSA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-3 CPA-MW4D-0910 R Water 6010B 680-182835 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-5 BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-6 BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-7EB BSA-MW3D-0910-EB R Water 6010B 680-182835 680-61495-8 CPA-MW3D-0910 R Water 6010B 680-182835 680-61495-9 CPA-MW3D-0910 R Water 6010B 680-182835 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-10 BSA-MW2D-910 R Water 6010B 680-182835 680-61495-12 BSA-MW1S-0910 R Water 6010B 680-182835 680-61495-13 BSA-MW1S-0910 R Water 6	680-61495-1	BSA-MW4D-0910	R	Water	6010B	680-182835
680-61495-5 CPA-MW4D-0910 R Water 6010B 680-182835 680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-5 BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-6 BSA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-7EB BSA-MW3D-0910-EB R Water 6010B 680-182835 680-61495-8 CPA-MW3D-0910 R Water 6010B 680-182835 680-61495-8 CPA-MW3D-0910-EB R Water 6010B 680-182835 680-61495-9 CPA-MW3D-0910 R Water 6010B 680-182835 680-61495-9 CPA-MW2D-0910 D Water 6010B 680-182835 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-12 BSA-MW1S-0910 R Water 6010B 680-182835 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910	680-61495-2	BSA-MW4D-F(0.2)-0910	D	Water	6010B	680-182835
680-61495-4 CPA-MW4D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-5 BSA-MW3D-0910 R Water 6010B 680-182835 680-61495-6 BSA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-6 BSA-MW3D-910-EB R Water 6010B 680-182835 680-61495-7EB BSA-MW3D-0910-EB R Water 6010B 680-182835 680-61495-9* CPA-MW3D-910 R Water 6010B 680-182835 680-61495-9* CPA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-10 BSA-MW2D-0910 R Water 6010B 680-182835 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-12 BSA-MW1S-0910 R Water 6010B 680-182835 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water	680-61495-🆫	CPA-MW4D-0910	R	Water	6010B	680-182835
680-61495-5 BSA-MW3D-0910 R Water 6010B 680-102033 680-61495-6 BSA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-7EB BSA-MW3D-0910-EB R Water 6010B 680-182835 680-61495-8 CPA-MW3D-0910 R Water 6010B 680-182835 680-61495-9* CPA-MW3D-910 R Water 6010B 680-182835 680-61495-9* CPA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-9* CPA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-10 BSA-MW2D-0910 R Water 6010B 680-182835 680-61495-11 BSA-MW1S-0910 D Water 6010B 680-182835 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water 6010B 680-182835 680-61543-13 BSA-MW1S-F(0.2)-0910 D Water<	680-61495-4	CPA-MW4D-F(0.2)-0910	D	Water	6010B	680-182835
680-61495-6 BSA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-7EB BSA-MW3D-0910-EB R Water 6010B 680-182835 680-61495-8 CPA-MW3D-0910 R Water 6010B 680-182835 680-61495-9 CPA-MW3D-910 R Water 6010B 680-182835 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-10 BSA-MW2D-0910 R Water 6010B 680-182835 680-61495-11 BSA-MW2D-910 R Water 6010B 680-182835 680-61495-12 BSA-MW1S-0910 D Water 6010B 680-182835 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water 6010B 680-182836 680-61543-1 CPA-MW2D-0910 R Water 6	680-61495-5	BSA-MW3D-0910	R	Water	6010B	680-182835
680-61495-7EB BSA-MW3D-0910-EB R Water 6010B 680-182835 680-61495-8 CPA-MW3D-0910 R Water 6010B 680-182835 680-61495-9 CPA-MW3D-0910 D Water 6010B 680-182835 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-10 BSA-MW2D-0910 R Water 6010B 680-182835 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-12 BSA-MW1S-0910 R Water 6010B 680-182835 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water 6010B 680-182836 680-61543-1MS Matrix Spike R Water 6010B 680-182836 680-61543-1MSD Matrix Spike Duplicate R Water <td>680-61495-6</td> <td>BSA-MW3D-F(0.2)-0910</td> <td>D</td> <td>Water</td> <td>6010B</td> <td>680-182835</td>	680-61495-6	BSA-MW3D-F(0.2)-0910	D	Water	6010B	680-182835
680-61495-8 CPA-MW3D-0910 R Water 6010B 680-102635 680-61495-9 CPA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-10 BSA-MW2D-0910 R Water 6010B 680-182835 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-12 BSA-MW2D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-13 BSA-MW1S-0910 R Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water 6010B 680-182836 680-61543-1MS Matrix Spike R Water 6010B 680-182836 680-61543-1MSD Matrix Spike Duplicate R Water 6010B 680-182836	680-61495-7EB	BSA-MW3D-0910-EB	R	Water	6010B	680-182835
680-61495-9t CPA-MW3D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-10 BSA-MW2D-0910 R Water 6010B 680-182835 680-61495-11 BSA-MW2D-F(0.2)-0910 D Water 6010B 680-182835 680-61495-12 BSA-MW1S-0910 D Water 6010B 680-182835 680-61495-13 BSA-MW1S-0910 R Water 6010B 680-182835 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water 6010B 680-182836 680-61543-1MS Matrix Spike R Water 6010B 680-182836 680-61543-1MSD Matrix Spike Duplicate R Water 6010B 680-182836	680-61495-8	CPA-MW3D-0910	R	Water	6010B	680-182835
680-61495-10 BSA-MW2D-0910 R Water 6010B 680-102805 580-61495-11 BSA-MW2D-F(0.2)-0910 D Water 6010B 680-182835 580-61495-12 BSA-MW1S-0910 R Water 6010B 680-182835 580-61495-12 BSA-MW1S-0910 R Water 6010B 680-182835 580-61495-13 BSA-MW1S-F(0.2)-0910 D Water 6010B 680-182835 580-61543-1 CPA-MW2D-0910 R Water 6010B 680-182835 580-61543-1 CPA-MW2D-0910 R Water 6010B 680-182836 680-61543-1MS Matrix Spike R Water 6010B 680-182836 580-61543-1MSD Matrix Spike Duplicate R Water 6010B 680-182836	680-61495-9	CPA-MW3D-F(0.2)-0910	D	Water	6010B	680-182835
580-61495-11 BSA-MW2D-F(0.2)-0910 D Water 6010B 680-102033 580-61495-12 BSA-MW1S-0910 R Water 6010B 680-182835 580-61495-13 BSA-MW1S-F(0.2)-0910 D Water 6010B 680-182835 580-61495-13 BSA-MW1S-F(0.2)-0910 D Water 6010B 680-182835 580-61543-1 CPA-MW2D-0910 R Water 6010B 680-182836 580-61543-1MS Matrix Spike R Water 6010B 680-182836 580-61543-1MSD Matrix Spike Duplicate R Water 6010B 680-182836	680-61495-10	BSA-MW2D-0910	R	Water	6010B	680-182835
680-61495-12 BSA-MW1S-0910 R Water 6010B 680-182835 680-61495-13 BSA-MW1S-F(0.2)-0910 D Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water 6010B 680-182835 680-61543-1 CPA-MW2D-0910 R Water 6010B 680-182836 680-61543-1MS Matrix Spike R Water 6010B 680-182836 680-61543-1MSD Matrix Spike Duplicate R Water 6010B 680-182836	380-61495-11	BSA-MW2D-F(0.2)-0910	D	Water	6010B	680-182835
6380-61495-13 BSA-MW1S-F(0.2)-0910 D Water 6010B 680-182835 6380-61543-1 CPA-MW2D-0910 R Water 6010B 680-182836 6380-61543-1MS Matrix Spike R Water 6010B 680-182836 6380-61543-1MSD Matrix Spike Duplicate R Water 6010B 680-182836	680-61495-12	BSA-MW1S-0910	R	Water	6010B	680-182835
6380-61543-1 CPA-MW2D-0910 R Water 6010B 680-182836 6380-61543-1MS Matrix Spike R Water 6010B 680-182836 6380-61543-1MSD Matrix Spike Duplicate R Water 6010B 680-182836 6380-61543-1MSD Matrix Spike Duplicate R Water 6010B 680-182836	680-61495-13	BSA-MW1S-F(0.2)-0910	D	Water	6010B	680-182835
680-61543-1MS Matrix Spike R Water 6010B 680-182836 680-61543-1MSD Matrix Spike Duplicate R Water 6010B 680-182836	380-61543-1	CPA-MW2D-0910	R	Water	6010B	680-182836
S80-61543-1MSD Matrix Spike Duplicate R Water 6010B 680-182836	680-61543-1MS	Matrix Spike	R	Water	6010B	680-182836
	680-61543-1MSD	Matrix Spike Duplicate	R	Water	6010B	680-182836
380-61543-2 CPA-MW2D-F(0.2)-0910 D Water 6010B 680 182836	380-61543-2	CPA-MW2D-F(0.2)-0910	D	Water	6010B	680-182836
680-61543-4 CPA-MW1D-0910 R Water 6010B 680 182836	680-61543-4	CPA-MW1D-0910	R	Water	6010B	680-182836
680-61543-5 CPA-MW1D-F(0.2)-0910 D Water 6010B 680-182836	80-61543-5	CPA-MW1D-F(0.2)-0910	D	Water	6010B	680-182836

Report Basis

D = Dissolveď R = Total Recoverable

Quality Control Results

Client: Solutia Inc.

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QC Association Summary

Job Number: 680-61455-1 Sdg Number: KPS060

Lob Comula ID		Report			
	Client Sample ID	Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:680-1807	53				
LCS 680-180753/3	Lab Control Sample	Т	Water	310.1	
LCSD 680-180753/15	Lab Control Sample Duplicate	т	Water	310.1	
MB 680-180753/2	Method Blank	Т	Water	310.1	
680-61455-1	CPA-MW5D-0910	Т	Water	310.1	
680-61455-1DU	Duplicate	Т	Water	310.1	
680-61455-3	BSA-MW5D-0910	Т	Water	310.1	
Analysis Batch:680-1808	29				
LCS 680-180829/2	Lab Control Sample	т	Motor	353.0	
MB 680-180829/1	Method Blank	т	Water	353.2	
680-61455-1	CPA-MW5D-0910	Ť	Water	353.2	
680-61455-1MS	Matrix Spike	Ť	Water	353.2	
680-61455-1MSD	Matrix Spike Duplicate	т	Water	353.2	
680-61455-3	BSA-MW5D-0910	т Т	Water	353.2	
		,	Valer	555.2	
Analysis Batch:680-18110	03				
LCS 680-181103/2	Lab Control Sample	Т	Water	353.2	
MB 680-181103/1	Method Blank	т	Water	353.2	
680-61495-1	BSA-MW4D-0910	Т	Water	353.2	
680-61495-1MS	Matrix Spike	Т	Water	353.2	
680-61495-1MSD	Matrix Spike Duplicate	Т	Water	353.2	
680-61495-3	CPA-MW4D-0910	Т	Water	353.2	
680-61495-5	BSA-MW3D-0910	Т	Water	353.2	
680-61495-8	CPA-MW3D-0910	Т	Water	353.2	
680-61495-10	BSA-MW2D-0910	Т	Water	353.2	
680-61495-12	BSA-MW1S-0910	Т	Water	353.2	
Analvsis Batch:680-18116	4				
LCS 680-181164/2	Lab Control Sample	т	Mater	353 0	
MB 680-181164/1	Method Blank	Ť	Water	353.2	
680-61543-1	CPA-MW2D-0910	, T	Water	353.2	
680-61543-1MS	Matrix Spike	, т	Water	353.2	
680-61543-1MSD	Matrix Spike Duplicate	Ť	Water	353.2	
680-61543-4	CPA-MW1D-0910	T	Water	353.2	
		•	vvalei	505.Z	
Analysis Batch:680-18129	5				
LCS 680-181295/2	Lab Control Sample	Т	Water	375.4	
MB 680-181295/1	Method Blank	т	Water	375.4	
680-61455-1	CPA-MW5D-0910	Т	Water	375.4	
680-61455-3	BSA-MW5D-0910	Т	Water	375.4	
680-61455-3DU	Duplicate	Т	Water	375.4	



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Job Number: 680-61455-1 Sdg Number: KPS060

QC Association Summary

Lab Samolo ID	Client Develop	Report			
can bample ib	Client Sample ID	Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:680-1813	50			····· · · · · · · · · · · · · · · · ·	
LCS 680-181350/6	Lab Control Sample	т	Water	310.1	
LCSD 680-181350/21	Lab Control Sample Duplicate	т	Water	310.1	
MB 680-181350/5	Method Blank	Т	Water	310.1	
680-61495-1	BSA-MW4D-0910	т	Water	310.1	
680-61495-3	CPA-MW4D-0910	Т	Water	310.1	
680-61495-5	BSA-MW3D-0910	Т	Water	310.1	
680-61495-8	CPA-MW3D-0910	т	Water	310.1	
680-61495-10	BSA-MW2D-0910	т	Water	310.1	
680-61495-12	BSA-MW1S-0910	т	Water	310.1	
680-61543-1	CPA-MW2D-0910	Т	Water	310.1	
680-61543-4	CPA-MW1D-0910	т	Water	310.1	
680-61543-4DU	Duplicate	Ť	Water	310.1	
	·		Water	510.1	
Analysis Batch:680-1815	10				
LCS 680-181510/4	Lab Control Sample	т	Mator	44E 4	
MB 680-181510/2	Method Blank	т Т	Water	415.1	
680-61455-1 #	CPA-MW5D-0910	т Т	Water	415.1	
680-61455-3	BSA-MW5D-0910	Ť	Water	415.1	
		1	vvalei	415.1	
Analysis Batch:680-18164	14				
LCS 680-181644/4	Lab Control Sample	т	Water	115 1	
MB 680-181644/2	Method Blank	т	Water	415.1	
680-61495-1	BSA-MW4D-0910	Ť	Water	415.1	
580-61495-3	CPA-MW4D-0910	т	Water	415.1	
680-61495-5	BSA-MW3D-0910	Ť	Water	415.1	
680-61495-8	CPA-MW3D-0910	Т	Water	415.1	
680-61495-8DU	Duplicate	т	Water	415.1	
680-61495-10	BSA-MW2D-0910	Ť	Water	410.1	
680-61495-12	BSA-MW1S-0910	Т	Water	415.1	
680-61543-1	CPA-MW2D-0910	T	Water	415,1	
680-61543-4	CPA-MW1D-0910	T	Water	415.1	
		I I	vvaler	415.1	
Analysis Batch:680-18166	5				
CS 680-181663/2-A	Lab Control Sample	п	Water	A 1 E 1	
/IB 680-181663/1-A	Method Blank	D	Water	415.1	
80-61455-2	CPA-MW5D-F(0.2)-0910		Water	415.1	
80-61455-4	BSA-MW/5D-F(0.2)-0910	D	vvater	415.1	
	DOM-WWWD-F(U.2)-U910	U	vvater	415.1	

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Job Number: 680-61455-1 Sdg Number: KPS060

QC Association Summary

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Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Mathad	One Det 1
General Chemistry				Method	Prep Batch
Analysis Batch:680-181927					1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -
680-61495-2	BSA-MW4D-F(0,2)-0910	D	Mator		
680-61495-2MS	Matrix Spike	D	Water	415.1	
680-61495-2MSD	Matrix Spike Duplicate	D	Water	415.1	
680-61495-4	CPA-MW4D-F(0,2)-0910	D	Water	415.1	
680-61495-6	BSA-MW3D-F(0.2)-0910	D	Water	415.1	
680-61495-9	CPA-MW3D-F(0.2)-0910	D	Water	415.1	
680-61495-11	BSA-MW2D-F(0,2)-0910	D	Water	415.1	
680-61495-13	BSA-MW1S-F(0.2)-0910	D	Water	415.1	
680-61543-2	CPA-MW2D-F(0,2)-0910	D	Water	415.1	
680-61543-5	CPA-MW1D-F(0,2)-0910	D	Water	410.1	
680-61543-5DU	Duplicate	D D	Water	415.1	
		U	vvaler	415.1	
Analysis Batch:680-182273					
LCS 680-182273/2	Lab Control Sample	т	Water	275 4	
MB 680-182273/1	Method Blank	Ť	Water	375.4	
680-61495-1	BSA-MW4D-0910	r T	Water	373.4	
680-61495-1MS	Matrix Spike	т	Water	375.4	
680-61495-1MSD	Matrix Spike Duplicate	, T	Water	375 A	
680-61495-3	CPA-MW4D-0910	Ť	Water	375.4	
680-61495-5 a	BSA-MW3D-0910	т Т	Water	375 4	
680-61495-8 ⁻	CPA-MW3D-0910	т	Water	373.4 375 A	
680-61495-10	BSA-MW2D-0910	Ť	Water	375 4	
680-61495-12	BSA-MW1S-0910	, T	Water	275 4	
680-61543-1	CPA-MW2D-0910	Ť	Water	375.4	
680-61543-4	CPA-MW1D-0910	Ť	Water	375.4	
. * \$ 1			- Tator	575.4	
Analysis Batch:680-182871					
LCS 680-182871/1	Lab Control Sample	т	Water	325.2	
MB 680-182871/17	Method Blank	Т	Water	325.2	
680-61455-1	CPA-MW5D-0910	T	Water	325.2	
680-61455-3	BSA-MW5D-0910	Т	Water	325.2	
680-61495-1	BSA-MW4D-0910	Т	Water	325.2	
680-61495-3	CPA-MW4D-0910	Т	Water	325.2	
680-61495-5	BSA-MW3D-0910	Т	Water	325.2	
680-61495-5DU	Duplicate	т	Water	325.2	
680-61495-8	CPA-MW3D-0910	T	Water	325.2	
680-61495-10	BSA-MW2D-0910	T	Water	325.2	
680-61495-12	BSA-MW1S-0910	T	Water	325.2	
680-61543-1	CPA-MW2D-0910	T	Water	325.2	
680-61543-4	CPA-MW1D-0910	Ť	Water	325.2	

<u>Report Basis</u>

D = Dissolved T = Total

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Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	%Rec	%Rec	%Rec
680-61455-1	CPA-MW5D-0910	95	94	103
680-61455-3	BSA-MW5D-0910	96	98	102
680-61455-5	Trip Blank #1	94	101	102
680-61495-1	BSA-MW4D-0910	94	96	103
680-61495-3 .	CPA-MW4D-0910	96	91	103
680-61495-5	BSA-MW3D-0910	97	94	102
680-61495-7	BSA-MW3D-0910-EB	94	99	101
680-61495-8	CPA-MW3D-0910	94	92	104
680-61495-10	BSA-MW2D-0910	94	101	105
680-61495-12	BSA-MW1S-0910	94	103	102
680-61495-14	Trip Blank 2	94	98	102
680-61543-1	CPA-MW2D-0910	97	94	103
680-61543-3	CPA-MW2D-0910-AD	96	94	103
680-61543-4	CPA-MW1D-0910	98	97	104
680-61543-6	Trip Blank #3	93	97	100
680-61543 ₋ 7	BSA-MW1S-0910	95	100	104
MB 680-181438/24		93	99	101
MB 680-181578/8		96	103	105
MB 680-181780/8		92	101	102
LCS 680-181438/21		97	100	96
LCS 680-181578/5		96	97	93
LCS 680-181780/5		97	99	96
LCSD 680-181438/22		96	103	96
LCSD 680-181578/6		96	96	95
LCSD 680-181780/6		99	100	95
680-61455-3 MS	BSA-MW5D-0910 MS	100	102	94
680-61455-3 MSD	BSA-MW5D-0910 MSD	102	103	98

Surrogate	Acceptance Limits
BFB = 4-Bromofluorobenzene	75-120
DBFM = Dibromofluoromethane	75-121
IOL = Toluene-d8 (Surr)	75-120

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Job Number: 680-61455-1 Sdg Number: KPS060

Quality Control Results

Client: Solutia Inc.

Job Number: 680-61455-1 Sdg Number: KPS060

Surrogate Recóvery Report

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	PHL %Rec	2FP %Rec	TBP %Rec	NBZ %Rec	FBP %Rec	TPH %Rec
680-61455-1	CPA-MW5D-0910	72	60	91	72	70	79
680-61495-3	CPA-MW4D-0910	42	38	56	46	43X	40
680-61495-8	CPA-MW3D-0910	74	63	92	75	72	36
680-61495-12	BSA-MW1S-0910	68	58	92	68	65	36
680-61543-1	CPA-MW2D-0910	49	49	78	57	61	66
680-61543-3	CPA-MW2D-0910-AD	65	68	88	73	72	40
680-61543-4	CPA-MW1D-0910	0D	0D	0D	0D	0D	49 0D

Surrogate	Acceptance Limits
PHL = Phenol-d5	38-116
2FP = 2-Fluorophenol	36-110
TBP = 2,4,6-Tribromophenol	40-139
NBZ = Nitrobenzene-d5	45-112
FBP = 2-Fluorobiphenyl	50-113
TPH = Terphenyl-d14	10-121

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Job Number: 680-61455-1 Sdg Number: KPS060

Surrogate Recovery Report

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	PHL %Rec	TBP %Rec	2FP %Rec	FBP %Rec	NBZ %Rec	TPH %Rec
MB 680-180934/11-A		54	66	49	61	62	87
MB 680-181388/14-A		72	75	72	73	75	85
LCS 680-180934/12-A		62	71	50	62	62	72
LCS 680-181388/15-A		74	83	71	75	76	80
680-61543-1 MS	CPA-MW2D-0910 MS	41	67	40	48X	48	45
680-61543-1 MSD	CPA-MW2D-0910 MSD	60	82	53	63	64	52

Surrogate	Acceptance Limits
PHL = Phenol-d5	38-116
TBP = 2,4,6-Tribromophenol	40-139
2FP = 2-Fluorophenol	36-110
FBP = 2-Fluorobiphenyl	50-113
NBZ = Nitrobenzene-d5	45-112
TPH = Terphenyl-d14	10-121

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Job Number: 680-61455-1 Sdg Number: KPS060

Surrogate Recovery Report

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	PHL %Rec	TBP %Rec	FBP %Rec	2FP %Rec	NBZ %Rec	TPH %Rec
680-61455-3	BSA-MW5D-0910	76	93	74	63	77	67
680-61495-1	BSA-MW4D-0910	79	98	79	70	82	57
680-61495-5	BSA-MW3D-0910	70	85	69	59	67	82
680-61495-7	BSA-MW3D-0910-EB	76	86	72	66	76	93
680-61495-10	BSA-MW2D-0910	72	85	66	60	70	40
680-61455-3 MS	BSA-MW5D-0910 MS	61	84	69	53	67	35
680-61455-3 MSD	BSA-MW5D-0910 MSD	65	83	69	53	65	34

Surrogate	Acceptance Limits
PHL = Phenol-d5	38-116
TBP = 2,4,6-Tribromophenol	40-139
FBP = 2-Fluorobiphenyl	50-113
2FP = 2-Fluorophenol	36-110
NBZ = Nitrobenzene-d5	45-112
TPH = Terphenyl-d14	10-121

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Method Blank - Batch: 680-181438

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 8260B Preparation: 5030B

Lab Sample ID:MB 680Client Matrix:WaterDilution:1.0Date Analyzed:09/28/2Date Prepared:09/28/2)-181438/24 / F U 010 1236 010 1236	Analysis Batch: Prep Batch: N/A Jnits: ug/L	680-181438	Instrument ID: Lab File ID: Initial Weight/Vo Final Weight/Vo	MSP2 pq278.c plume: plume:	1 5 5	mL mL
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Analyte	Result	Qual	RL
Benzene Chlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	1.0 1.0 1.0 1.0 1.0 1.0	U U U U U	1.0 1.0 1.0 1.0 1.0 1.0
Surrogate	% Rec	Accep	itance Limits
4-Bromofluorobenzene Dibromofluoromethane Toluene-d8 (Surr)	93 99 101	november and based of the second s 7 7 7	5 - 120 5 - 121 5 - 120

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Lab Control Sample/

Lab Control Sample Duplicate Recovery Report - Batch: 680-181438

09/28/2010 1108

09/28/2010 1108

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

5 mL

Method: 8260B Preparation: 5030B

Final Weight/Volume:

LCS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	LCS 680-181438/21 Water 1.0 09/28/2010 1039 09/28/2010 1039	Analysis Batch: 680-181438 Prep Batch: N/A Units: ug/L	Instrument ID: MSP2 Lab File ID: pq270.d Initial Weight/Volume: 5 mL Final Weight/Volume: 5 mL
LCSD Lab Sample ID: Client Matrix: Dilution: Date Analyzed:	LCSD 680-181438/22 Water 1.0 09/28/2010 1108	Analysis Batch: 680-181438 Prep Batch: N/A Units: ug/L	Instrument ID: MSP2 Lab File ID: pq272.d Initial Weight/Volume: 5 mL

Apolita	-	<u>% Rec.</u>					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene Chlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	98 104 102 99 98	97 103 100 99 98	77 - 119 85 - 116 79 - 124 78 - 125 81 - 122	2 1 1 0.9 0.07	30 30 30 30 30 30		
Surrogate	L	CS % Rec		Pag	•		
4-Bromofluorobenzene Dibromofluoromethane Toluene-d8 (Surr)	97 10 96	7 DO S	96 103 96		75 75 75 75	- 120 - 121 - 121 - 120	

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Date Prepared:



Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 8260B Preparation: 5030B

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-181578/8 Water 1.0 09/30/2010 1233 09/30/2010 1233	Analysis Batch: 680-181578 Prep Batch: N/A Units: ug/L		Instrument ID: MSP2 Lab File ID: pq306.d Initial Weight/Volume: 5 mL Final Weight/Volume: 5 mL
<u>ه</u> .				
Analyte		Result	Qual	RI
Benzene		1.00	11	
Chlorobenzene		10	U	1.0
1,2-Dichlorobenz	ene	1.0	0	1.0
1,3-Dichlorobenz	ene	1.0	U	1.0
1,4-Dichlorobenz	ene	1.0	U	1.0
		1.0	U	1.0
Surrogate		% Rec		Acceptance Limits
4-Bromofluorober	nzene	96		75 400
Dibromofluorome	thane	103		/ J - 12U
Toluene-d8 (Surr)	105		75 - 121
		105		75 - 120

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Method Blank - Batch: 680-181578

Client: Solutia Inc.

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. Lab Control Sample/

Date Prepared:

Lab Control Sample Duplicate Recovery Report - Batch: 680-181578

09/30/2010 1105

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 8260B Preparation: 5030B

LCS Lab Sample ID: Client Matrice Dilution: Date Analyzed: Date Prepared:	LCS 680-181578/5 Water 1.0 09/30/2010 1036 09/30/2010 1036	Analysis Batch: 680-181578 Prep Batch: N/A Units: ug/L	Instrument ID: MSP2 Lab File ID: pq298.d Initial Weight/Volume: 5 mL Final Weight/Volume: 5 mL
LCSD Lab Sample ID: Client Matrix: Dilution: Date Analyzed:	LCSD 680-181578/6 Water 1.0 09/30/2010 1105	Analysis Batch: 680-181578 Prep Batch: N/A Units: ug/L	Instrument ID: MSP2 Lab File ID: pq300.d Initial Weight/Volume: 5 mL Final Weight/Volume: 5 mL

• • •	(-	<u>% Rec.</u>					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene ·	93	95	77 - 119	2	30		
	103	103	85 - 116	1	30		
1,2-Dichlorobenzene	100	99	79 - 124	1	30		
1,3-Dichlorobenzene 1,4-Dichlorobenzene	96	98	78 - 125	2	30		
	97	98	81 - 122	0	30		
Surrogate	L	CS % Rec	LCSD %	Rec	Accep	tance Limits	
4-Bromofluorobenzene Dibromofluoromethane Toluene-d8 (Surr)	9	6	96		7	5 - 120	
	9	7	96		7	5 - 121	
	9:	3	95		7	5 - 120	

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Method Blank - Batch: 680-181780

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 8260B Preparation: 5030B

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-181780/8 Water 1.0 10/01/2010 1237 10/01/2010 1237	Analysis Batch: 680-181780 Prep Batch: N/A Units: ug/L		Instrument ID: MSP2 Lab File ID: pq320. Initial Weight/Volume: Final Weight/Volume:	d 5 mL 5 mL
Analyte		Result	Quai		RL
Benzene		1.0	U		1.0
Chlorobenzene		1.0	Ŭ		1.0
1,2-Dichlorobenz	ene	10			1.0
1,3-Dichlorobenz	ene	1.0	0		1.0
1.4-Dichlorobenz	ene	1.0	0		1.0
		1.6	U		1.0
Surrogate	da hannan menerakan kana kana kana kana kana kana kana	% Rec		Acceptance Limits	
4-Bromofluorober	Izene	92		75 - 120	
Dibromofluorome	thane	101		75 120	
Toluene-d8 (Surr))	102		75 - 120	
				10 120	





Lab Control Sample/

Lab Control Sample Duplicate Recovery Report - Batch: 680-181780

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 8260B Preparation: 5030B

LCS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	LCS 680-181780/5 Water 1.0 10/01/2010 1035 10/01/2010 1035	Analysis Batch: 680-181780 Prep Batch: N/A Units: ug/L	Instrument ID: MSP2 Lab File ID: pq312.d Initial Weight/Volume: Final Weight/Volume:	5 mL 5 mL
LCSD Late Bample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	LCSD 680-181780/6 Water 1.0 10/01/2010 1104 10/01/2010 1104	Analysis Batch: 680-181780 Prep Batch: N/A Units: ug/L	Instrument ID: MSP2 Lab File ID: pq314.d Initial Weight/Volume: 5 Final Weight/Volume: 5	mL mL

	2	Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	95	93	77 - 119	2	30		
Chlorobenzene	102	102	85 - 116	0	30		
1,2-Dichlorobenzene	98	99	79 - 124	1	30		
1,3-Dichlorobenzene	98	98	78 - 125	0	30		
1,4-Dichlorobenzene	96	98	81 - 122	2	30		
Surrogate	L	CS % Rec	LCSD %	Rec	Accep	tance Limits	
4-Bromofluorobenzene	97	7	99		7	5 - 120	
Dibromofluoromethane	99	Э	100		7	5 - 121	
Toluene-d8 (Surr)	96	3	95		7	5 - 120	

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Matrix Spike/

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Matrix Spike Duplicate Recovery Report - Batch: 680-181780

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 8260B Preparation: 5030B

MS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61455-3 Water 5.0 10/01/2010 2027 10/01/2010 2027	Analysis Batch: 680-181780 Prep Batch: N/A	Instrument ID: MSP2 Lab File ID: p0634.d Initial Weight/Volume: 5 mL Final Weight/Volume: 5 mL
MSD Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61455-3 Water 5.0 10/01/2010 2057 10/01/2010 2057	Analysis Batch: 680-181780 Prep Batch: N/A	Instrument ID: MSP2 Lab File ID: p0636.d Initial Weight/Volume: 5 mL Final Weight/Volume: 5 mL

Analyte	MS	<u>% Rec.</u> MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Benzene	91	91	77 - 119	0	30		·····
Chlorobenzene	86	87	85 - 116	1	30		
1,2-Dichlorobenzene	104	105	79 - 124	1	30		
1,3-Dichlorobenzene	102	105	78 - 125	3	30		
1,4-Dichlorobenzene	100	104	81 - 122	4	30		
Surrogate		MS % Rec	MSD 9	% Rec	Acc	eptance Limits	
4-Bromofluorobenzene Dibromofluoromethane Toluene-d8 (Surr)		100 102 94	102 103 98		1000 000000000000000000000000000000000	75 - 120 75 - 121 75 - 120	nation of the output of the

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Method Blank - Batch: 680-180934

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 8270C Preparation: 3520C

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-180934/11-A Water 1.0 09/29/2010 0941 09/24/2010 1438	Analysis Batch: 680-181416 Prep Batch: 680-180934 Units: ug/L		Instrument ID: MSG Lab File ID: g3574.d Initial Weight/Volume: 1000 mL Final Weight/Volume: 1 mL Injection Volume: 1 uL	
Ø					
Analyte		Result	Qual	BI	
4-Chloroaniline		20	Ш		8-8-coppo-ez
1,2,4-Trichloroben	izene	10	U	20	
1.4-Dioxane		10	U	10	
2-Chlorophenol		10	U	10	
2 officiophenol		10	U	10	
Surrogate		% Rec		Acceptance Limite	
Phenol-d5					*********
246-Tribromonho	nol	54		38 - 116	
2 Elucrophonal	inoi	66		40 - 139	
		49		36 - 110	
∠-⊢iuorobiphenyl		61			

Lab Control Sample - Batch: 680-180934

Nitrobenzene-d5

Terphenyl-d14

Method: 8270C Preparation: 3520C

50 - 113

45 - 112

10 - 121

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	LCS 680-180934/12-A Water 1.0 09/29/2010 1008 09/24/2010 1438	Analysis Batch: 680-181416 Prep Batch: 680-180934 Units: ug/L	Instrument ID: MSG Lab File ID: g3575.d Initial Weight/Volume: 1000 mL Final Weight/Volume: 1 mL Injection Volume: 1 uL
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Analyte	Spike Amount	Result	% Rec.	Limit	Qual	
4-Chloroaniline	100	54.1	54	10 - 110		
1,4-Dioxane	100 100	53.7 41.3	54 41	41 - 110		
2-Chlorophenol	100	65.1	65	47 - 110		
Surrogate	% Rec		Acc	ceptance Limits		
Phenol-d5	62		38 - 116 40 - 139			
2,4,6-Tribromophenol	71					
2-Fluorophenol 2-Fluorobiphenvl	50		36 - 110			
Nitrobenzene-d5	62			50 - 113		
Terphenyl-d14	72	72		45 - 112 10 - 121		

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Matrix Spike/

Matrix Spike Duplicate Recovery Report - Batch: 680-180934

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 8270C Preparation: 3520C

MS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61455-3 Water 1.0 09/29/2010 1504 09/24/2010 1438	Analysis Batch: 680-181416 Prep Batch: 680-180934	Instrument ID: MSG Lab File ID: g3586.d Initial Weight/Volume: 1050 mL Final Weight/Volume: 1 mL Injection Volume: 1 uL
MSD Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61455-3 Water 1.0 09/29/2010 1531 09/24/2010 1438	Analysis Batch: 680-181416 Prep Batch: 680-180934	Instrument ID: MSG Lab File ID: g3587.d Initial Weight/Volume: 1060 mL Final Weight/Volume: 1 mL Injection Volume: 1 uL

	<u>% Rec.</u>					
Analyte MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
4-Chloroaniline 38	19	10 - 110	67	40		
1,2,4-Trichlorobenzene 61	61	41 - 110	2	40		01
1,4-Dioxane 51	42	11 - 110	20	40		
2-Chlorophenol 67	65	47 - 110	4	40		
Surrogate ·	MS % Rec	MSD %	6 Rec	Acc	entance l imite	
Phenol-d5	61	65		2000		
2,4,6-Tribromophenol	84	83		3	0 - 130	
2-Fluorobiphenyl	69	69		- 5	0 - 113	
2-Fluorophenol	53	53		3	6 - 110	
Nitrobenzene-d5	67	65		4	5 - 112	
rerpnenyi-d14	35	34		1	0 - 121	

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Method Blank - Batch: 680-181388

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 8270C Preparation: 3520C

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-181388/14-A Water 1.0 10/01/2010 1450 09/29/2010 1451	Analysis Batch: 680-181687 Prep Batch: 680-181388 Units: ug/L		Instrument ID: MSN Lab File ID: n9498.d Initial Weight/Volume: 1000 mL Final Weight/Volume: 1 mL Injection Volume: 1 uL
Analyte		Result	Qual	RL
1,2,4-Trichlorobe	nzene	100	U	1
2-Chlorophenol		10	Ŭ	10
Surrogate		% Rec		Acceptance Limits
Phenol-d5		72		38 - 116
2,4,6-Tribromoph	enol	75		40 - 139
2-Fluorophenol		72		36 - 110
2-Fluorobiphenyl		73		50 - 113

Lab Control Sample - Batch: 680-181388

Nitrobenzene-d5

Terphenyl-d14

Method: 8270C

45 - 112

10 - 121

Preparation: 3520C

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	LCS 680-181388/15-A Water 1.0 10/01/2010 1516 09/29/2010 1451	Analysis Batch: 680-181687 Prep Batch: 680-181388 Units: ug/L	Instrument ID: MSN Lab File ID: n9499.d Initial Weight/Volume: 1000 Final Weight/Volume: 1 m Injection Volume: 1 ul	։ mL L -
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Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,2,4-Trichlorobenzene	100	76.2	76	41 - 110	
2-Chlorophenol	100	79.7	80	47 - 110	
Surrogate	% R	% Rec		ceptance Limits	
Phenol-d5	74	74		38 - 116	
2,4,6-Tribromophenol	83		40 - 139		
2-Fluorophenol	71				
2-Fluorobiphenyl	75	75		50 113	
Nitrobenzene-d5	76			45 - 112	
Terphenyl-d14	80		10 - 121		

Matrix Spike/

Matrix Spike Duplicate Recovery Report - Batch: 680-181388

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 8270C Preparation: 3520C

MS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61543-1 Water 1.0 10/01/2010 1957 09/29/2010 1451	Analysis Batch: 680-181687 Prep Batch: 680-181388	Instrument ID: MSN Lab File ID: n9510.d Initial Weight/Volume: 500 mL Final Weight/Volume: 0.5 mL Injection Volume: 1 uL
MSD Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61543-1 Water 1.0 10/04/2010 1427 09/29/2010 1451	Analysis Batch: 680-181862 Prep Batch: 680-181388	Instrument ID: MSG Lab File ID: g3637.d Initial Weight/Volume: 500 mL Final Weight/Volume: 0.5 mL Injection Volume: 1 uL

Analyte	MC	<u>% Rec.</u>						
	IVIS	MSD	Limit		RPD	RPD Limit	MS Qual	MSD Qual
1,2,4-Trichlorobenzene	42	60	41 - 11)	34	40		
2-Chlorophenol	44	75	47 - 110)	40	40	F	
Surrogate		MS % Rec	N	/ISD % Re	C	Acce	eptance Limits	
Phenol-d5		41	6	ï٨		<u>م</u>	0 440	
2,4,6-Tribromophenol		67	с 8	2		3	0 120	
2-Fluorophenol		40	5	3		3	6 - 110	
2-Fluorobiphenyl		48	X 6	3		5	0 - 113	
Nitrobenzene-d5		48	6	4		4	5 - 112	
Terphenyl-d14		45	5	2		1	0 - 121	

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Client: Solutia Inc.

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Method Blank - Batch: 680-181772

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: RSK-175 Preparation: N/A

Lab Sample ID: M Client Matrix: M Dilution: 1 Date Analyzed: 1 Date Prepared: M	MB 680-181772/24 Water I.0 I0/01/2010 1228 N/A	Analysis E Prep Batc Units: ແຜ	Batch: 686 h: N/A g/L	0-181772		Instrument ID: VGUFID2 Lab File ID: UQ907.D Initial Weight/Volume: 17000 uL Final Weight/Volume: 17 mL Injection Volume: 1 uL Column ID: PRIMARY
Analyte			Result		Qual	RL
Ethane Ethylene Methane Lab Control Sam	iple/	SCOLOGY - MANAGAMANA A SOLOGI A A	0.35 0.33 0.19		U U U U	0.35 0.33 0.19 Method: RSK-175
Lab Control Sam	ple Duplicate Recovery R	eport - Batch	: 680-18	1772		Preparation: N/A
LCS Lab Sample ID Client Matrix: Dilution: Date Analyzed: Date Prepared:	 LCS 680-181772/23 Water 1.0 10/01/2010 1202 N/A 	Analysis Prep Bat Units: u	Batch: 68 ch: N/A ɹg/L	80-181772		Instrument ID: VGUFID2 Lab File ID: UQ905.D Initial Weight/Volume: 17000 uL Final Weight/Volume: 17 mL Injection Volume: 1 uL Column ID: PRIMARY
LCSD Lab sample I Client Matrix: Dilution: Date Analyzed: Date Prepared:	D: LCSD 680-181772/25 Water 1.0 10/01/2010 1928 N/A	Analysis Prep Bato Units: u	Batch: 68 ch: N/A ig/L	80-181772		Instrument ID: VGUFID2 Lab File ID: UQ909.D Initial Weight/Volume: 17000 uL Final Weight/Volume: 17 mL Injection Volume: 1 uL Column ID: PRIMARY
Analyte		<u>% R</u> LCS	<u>ec.</u> LCSD	Limit	RPD	RPD Limit LCS Qual LCSD Qual
Ethane Ethylene Methane		105 103 103	104 98 101	75 - 125 75 - 125 75 - 125	1 5 2	30 30 30 30

.

Method Blank - Batch: 680-181773

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: RSK-175 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-181773/10 Water 1.0 10/01/2010 1228 N/A	Analysis Batch: Prep Batch: N// Units: ug/L	: 680-181773 4		Instrument ID: VGUTCD1 Lab File ID: UQ907.D Initial Weight/Volume: 17000 uL Final Weight/Volume: 17 mL Injection Volume: 1 uL Column ID: PRIMARY
Analyte		Res	ult	Qual	PI
Methane		0.19		U	
Lab Control San Lab Control San	nple/ nple Duplicate Recovery	Report - Batch: 68	0-181773		Method: RSK-175 Preparation: N/A
LCS Lab Sample ID Client Matrix: Dilution: Date Analyzed: Date Prepared:	 D: LCS 680-181773/9 Water 1.0 10/01/2010 1137 N/A 	Analysis Batch Prep Batch: N/ Units: ug/L	n: 680-181773 /A		Instrument ID: VGUTCD1 Lab File ID: UQ903.D Initial Weight/Volume: 17000 uL Final Weight/Volume: 17 mL Injection Volume: 1 uL Column ID: PRIMARY
LCSD Lab Sample I Client Matrix: Dilution: Date Analyzed: Date Prepared:	D: LCSD 680-181773/11 Water 1.0 10/01/2010 1915 N/A	Analysis Batch Prep Batch: N/, Units: ug/L	: 680-181773 A		Instrument ID: VGUTCD1 Lab File ID: UQ908.D Initial Weight/Volume: 17000 uL Final Weight/Volume: 17 mL Injection Volume: 1 uL Column ID: PRIMARY
Analyte		<u>% Rec.</u> LCS LCSE	D Limit	RPD) RPD Limit LCS Qual LCSD Qual
Methane		97 95	75 - 125	2	30

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Method Blank - Batch: 680-181917

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: RSK-175 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-181917/23 Water 1.0 10/04/2010 1234 N/A	Analysis Ba Prep Batch Units: ug,	atch: 680- n: N/A /L	181917		Instrument ID: Lab File ID: Initial Weight/Vol Final Weight/Vol Injection Volume Column ID:	VGUFID2 UQ916.D lume: 1000 ume: 17 u : 1 ul PRIMARY) uL nL
Analyte			Result		Qual		-	
Ethane			60	****	11		ĸ	L
Ethylene			5.6		U		6.0)
Methane			3.2		U U		5.6	6
					U U		3.2	2
Lab Control San Lab Control San	nple/ nple Duplicate Recovery R	Report - Batch:	680-181	917		Method: RSK-1 Preparation: N/	75 'A	
LCS Lab Sample ID Client Matrix: Dilution: Date Analyzed: Date Prepared:	 LCS 680-181917/22 Water 1.0 10/04/2010 1222 N/A 	Analysis B Prep Batcl Units: uç	Batch: 680 h: N/A g/L	-181917		Instrument ID: \ Lab File ID: L Initial Weight/Volum Final Weight/Volum njection Volume: Column ID:	/GUFID2 JQ915.D ne: 1700 e: 17 1 u PRIMAR	00 uL mL L
LCSD Lab Sample II Client Matrix: Dilution: Date Analyzed: Date Prepared:	D: LCSD 680-181917/24 Water 1.0 10/04/2010 1840 N/A	Analysis Batch Prep Batch Units: ug	atch: 680 h: N/A /L	.181917	l I F II C	nstrument ID: .ab File ID: UQ nitial Weight/Volum inal Weight/Volume njection Volume: column ID:	VGUFID2 919.D e: 17000 e: 17 m 1 uL PRIMARY	uL
Analyte		<u>% Re</u> LCS L	<u>c.</u> .CSD	Limit	RPD	RPD Limit	LCS Qual	
Ethane		108 4	02	76 405			Qudi	
Ethylene		106 0	02	75 - 125	6	30		
Methane		105 1	00	70 - 120 75 125	9	30		
			00	10 - 120	5	30		

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Method Blank - Batch: 680-181925

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: RSK-175 Preparation: N/A

Lab Sample ID: M Client Matrix: V Dilution: 1 Date Analyzed: 1 Date Prepared: N	/IB 680-181925/8 Vater .0 0/04/2010 1247 I/A	Analysis Batch Prep Batch: N/ Units: ug/L	: 680-181925 A		Instrument ID: VGUTCD1 Lab File ID: UQ917.D Initial Weight/Volume: 17000 uL Final Weight/Volume: 17 mL Injection Volume: 1 uL Column ID: PRIMARY
Analyte		Res	sult	Qual	RL
Methane	nn an fallan na Stalan sin Anna Tarananan an sa an sa gana Salan Salan sa sana sa s	0.1	9	U	9490-01-01-01-02-02-02-02-02-02-02-02-02-02-02-02-02-
Lab Control Sam Lab Control Sam	ple/ ple Duplicate Recovery R	eport - Batch: 68	30-181925		Method: RSK-175 Preparation: N/A
LCS Lab Sample ID Client Matrix: Dilution: Date Analyzed: Date Prepared:	: LCS 680-181925/7 Water 1.0 10/04/2010 1156 N/A	Analysis Batc Prep Batch: N Units: ug/L	h: 680-181925 I/A		Instrument ID: VGUTCD1 Lab File ID: UQ913.D Initial Weight/Volume: 17000 uL Final Weight/Volume: 17 mL Injection Volume: 1 uL Column ID: PRIMARY
LCSD Lab Sample II Client Matrix: Dilution: Date Analyzed: Date Prepared:	D: LCSD 680-181925/9 Water 1.0 10/04/2010 1827 N/A	Analysis Batcł Prep Batch: N Units: ug/L	n: 680-181925 /A		Instrument ID: VGUTCD1 Lab File ID: UQ918.D Initial Weight/Volume: 17000 uL Final Weight/Volume: 17 mL Injection Volume: 1 uL Column ID: PRIMARY
Analyte		<u>% Rec.</u> LCS LCS	D Limit	RPD	RPD Limit LCS Qual I CSD Qual
Methane		99 95	75 - 125	4	30

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Client Matrix:

Dilution:

Method Blank - Batch: 680-182835

Lab Sample ID: MB 680-182835/18-A

1.0

Date Analyzed:10/16/20100936Date Prepared:10/13/20101455

Water

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 6010B Preparation: 3005A Total Recoverable

Method: 6010B Preparation: 3005A

Analysis Batch: 680-183127	Instrument ID:	ICPD			
Prep Batch: 680-182835	Lab File ID:	101510103		9.chr	
Units: mg/L	Initial Weight/Vo	lume:	50	mL	
	Final Weight/Vol	ume:	50	mL	

Analyte	Popult	Qual	
	Result	Qual	RL
Iron	0.050	LI	
Iron, Dissolved	0.050	U U	0.050
Manganese	0.010	0	0.050
Manganese, Dissolved	0.010	0	0.010
5	0.010	U	0.010

Lab Control Sample - Batch: 680-182835

• .			Total Recoverable			
Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	LCS 680-182835/19-A Water 1.0 10/15/2010 1629 10/13/2010 1455	Analysis Batch: 680-183127 Prep Batch: 680-182835 Units: mg/L	Instrument ID: 10 Lab File ID: 1 Initial Weight/Volu Final Weight/Volu	CPD 015101039.chr ime: 50 mL me: 50 mL		

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Iron Iron, Dissolved Manganese Manganese, Dissolved	1.00 1.00 0.500 0.500	1.01 1.01 0.520 0.520	101 101 104 104	75 - 125 75 - 125 75 - 125 75 - 125 75 - 125	

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Matrix Spike/

Matrix Spike Duplicate Recovery Report - Batch: 680-182835

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 6010B Preparation: 3005A Total Recoverable

MS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61455-1 Water 1.0 10/15/2010 1649 10/13/2010 1455	Analysis Batch: 680-183127 Prep Batch: 680-182835	Instrument ID: ICPD Lab File ID: 1015101039.chr Initial Weight/Volume: 50 mL Final Weight/Volume: 50 mL
MSD Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61455-1 Water 1.0 10/15/2010 1655 10/13/2010 1455	Analysis Batch: 680-183127 Prep Batch: 680-182835	Instrument ID: ICPD Lab File ID: 1015101039.chr Initial Weight/Volume: 50 mL Final Weight/Volume: 50 mL

1	<u>%</u>	Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual	
Iron	18	150	75 405					
Iron, Dissolved	10	100	75 - 125	1	20	4	4	
Maria	18	150	75 - 125	1	20	4	4	
Manganese	97	107	75 - 125	1	20		4	
Manganese, Dissolved	07	107	10 120	ſ	20	4	4	
0	97	107	75 - 125	1	20	4	4	

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Client Matrix:

Dilution:

Method Blank - Batch: 680-182836

Lab Sample ID: MB 680-182836/19-A

1.0

Date Analyzed: 10/15/2010 1856

Date Prepared: 10/13/2010 1458

Water

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 6010B Preparation: 3005A Total Recoverable

Method: 6010B Preparation: 3005A

Instrument ID: ICPD Lab File ID: 1015101039.chr Initial Weight/Volume: 50 mL Final Weight/Volume: 50 mL

Analyte			
	Result	Qual	RI
Iron	0.050	11	
Iron, Dissolved	0.050	U	0.050
Manganese	0.010	0	0.050
Manganese, Dissolved	0.010	U	0.010
	0.010	U	0.010

Analysis Batch: 680-183127

Prep Batch: 680-182836

Units: mg/L

Lab Control Sample - Batch: 680-182836

Lah Sample ID			Total Recoverable			
Client Matrix:	Water	Analysis Batch: 680-183127 Prep Batch: 680-182836	Instrument ID: Lab File ID:	ICPD	1102	0 ohr
Date Analyzed: 10/15/2010 1902 Date Prepared: 10/13/2010 1458	Units: mg/L	Initial Weight/Vo Final Weight/Vo	lume:	5103: 50 50	mL ml	

Analyte

Analyte	Spike Amount	Popult			
Iron Iron, Dissolved Manganese Manganese, Dissolved	1.00 1.00 0.500 0.500	1.06 1.06 0.533 0.533	% Rec. 106 106 107 107	Limit 75 - 125 75 - 125 75 - 125 75 - 125 75 - 125	Qual

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Matrix Spike/

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Matrix Spike Duplicate Recovery Report - Batch: 680-182836

10/13/2010 1458

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

50 mL

Method: 6010B Preparation: 3005A **Total Recoverable**

Final Weight/Volume:

MS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61543-1		i otal Recoverable			
	Water 1.0 10/15/2010 1923 10/13/2010 1458	Analysis Batch: 680-183127 Prep Batch: 680-182836	Instrument ID: ICPD Lab File ID: 1015101039.chr Initial Weight/Volume: 50 mL Final Weight/Volume: 50 mL			
MSD Lab Sample ID: Client Matrix: Dilution:	680-61543-1 Water 1.0 10/15/2010 1928 10/13/2010 1458	Analysis Batch: 680-183127 Prep Batch: 680-182836	Instrument ID: ICPD Lab File ID: 1015101039.chr Initial Weight/Volume: 50 mL Final Weight/Volume: 50 mL			

Analyte	<u>% Rec.</u>						
	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Iron, Dissolved	111	105	75 - 125	1	20	1	uuu
Manganese	117	105	75 - 125	1	20	4	4
Manganese, Dissolved	103	103	75 - 125	0	20		4
		103	75 - 125	0	20		

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Method Blank - Batch: 680-180753

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 310.1 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared: N	MB 680-180753/2 Vater .0 9/22/2010 1957 I/A	Analy Prep Units	/sis Batch: (Batch: N/A : mg/L	680-180753		Instrument ID: MANTECH Lab File ID: alk092210.TXT Initial Weight/Volume: 25 mL Final Weight/Volume: 25 mL
Analyte *			Result			
Alkalinity			FO	*******	Qual	RL
Carbon Dioxide, Fre	e		5.0 5.0		U	5.0
Lab Control Sam	nlo/				0	5.0
Lab Control Sam	ole Duplicate Recovery	Report - Ba	itch: 680-1	80753		Method: 310.1 Preparation: N/A
LCS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	LCS 680-180753/3 Water 1.0 09/22/2010 2007 N/A	Analy Prep Units	/sis Batch: (Batch: N/A : mg/L	680-180753		Instrument ID: MANTECH Lab File ID: alk092210.TXT Initial Weight/Volume: 25 mL Final Weight/Volume: 25 mL
LCSD Lab Sample ID Client Matrix: Dilution: Date Analyzed: Date Prepared:	ELCSD 680-180753/15 Water 1.0 09/22/2010 2140 N/A	Analys Prep E Units:	sis Batch: 6 3atch: N/A mg/L	80-180753		Instrument ID: MANTECH Lab File ID: alk092210.TXT Initial Weight/Volume: 25 mL Final Weight/Volume: 25 mL
Analyte		LCS	<u>, Rec.</u> LCSD	Limit	RPD	RPD Limit LCS Qual LCSD Qual
n an Illy		89	90	80 - 120	1	300 - 300 -

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Page 129 of 152
Duplicate - Batch: 680-180753

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 310.1 Preparation: N/A

Client Matrix: Water Prep Batch: 680-180753 Dilution: 1.0 Prep Batch: N/A Date Analyzed: 09/22/2010 2112 Date Prepared: N/A	Lab File ID: Initial Weight/Vo Final Weight/Vo	MANT alk092 olume: olume:	ECH 210.TXT 25 mL 25 ml
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Analyte					
Alkalinity	Sample Result/Qual	Result	RPD	Limit	Qual
Carbon Dioxide, Free	94	352 103	3	30	
			9	30	

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Method Blank - Batch: 680-181350

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Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method Blank - Batch: 680-181350				Method: 310.1 Preparation: N/A
Lab Sample ID: M Client Matrix: V Dilution: 1 Date Analyzed: 0 Date Prepared: N	IB 680-181350/5 Vater .0 9/28/2010 1130 I/A	Analysis Batch: 680-181350 Prep Batch: N/A Units: mg/L		Instrument ID: MANTECH Lab File ID: alk092810b.TXT Initial Weight/Volume: 25 mL Final Weight/Volume: 25 mL
Analyte		Result	Qual	RL
Alkalinity		5.0	U	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Carbon Dioxide, Fre	e	5.0	U	5.0
Lab Control Sam Lab Control Sam	ple/ ple Duplicate Recovery Re	eport - Batch: 680-181350		Method: 310.1 Preparation: N/A
LCS Lab Sample ID	ECS 680-181350/6	Analysis Batch: 680-181350		Instrument ID: MANTECH
Client Matrix:	Water	Prep Batch: N/A		Lab File ID: alk092810b.TXT
Dilution:	1.0	Units: mg/L		Initial Weight/Volume: 25 mL
Date Prepared:	N/A			Final Weight/Volume: 25 mL
LCSD Lab Sample I	D: LCSD 680-181350/21	Analysis Batch: 680-181350	111 111 115 115 115 115 115 115 115 115	Instrument ID: MANTECH
Client Matrix:	Water	Prep Batch: N/A		Lab File ID: alk092810b.TXT
Dilution:	1.0	Units: mg/L		Initial Weight/Volume: 25 mL
Date Analyzed:	09/28/2010 1407			Final Weight/Volume: 25 mL

	<u>% F</u>	<u>Rec.</u>					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Alkalinity	92	87	80 - 120	6	30		****

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Date Prepared:

N/A

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Duplicate - Batch: 680-181350

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 310.1 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61543-4 Water 1.0 09/28/2010 1357 N/A	Analysis Batch: 680-181350 Prep Batch: N/A Units: mg/L	Instrument ID: M Lab File ID: al Initial Weight/Volu Final Weight/Volur	IANTECH Ik092810b. me: 25 me: 25	TXT mL mL

Analyte	Sample Result/	Qual	Result	RPD	Limit	Qual
Alkalinity	990		1030	4	30	
Carbon Dioxide, Free	5.0	U	5.0	NC	30	U

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Job Number: 680-61455-1 Sdg Number: KPS060

Method: 325.2 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-182871/17 Water 1.0 10/13/2010 1755 N/A	Analysis Batch: 6 Prep Batch: N/A Units: mg/L	80-182871		Instrument ID: Lab File ID: Initial Weight/V Final Weight/V	KONELAB1 KONE11013 ′olume: 2 m olume: 2 m	101CLB.xls nL nL
Analyte		Result		Qual		R	L.
Chloride		1.0	979/00009999900000000000000000000000000	U		1.	0
Lab Control S	ample - Batch: 680-18287	1			Method: 325. Preparation:	2 N/A	
Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	LCS 680-182871/1 Water 1.0 10/13/2010 1720 N/A	Analysis Batch: 68 Prep Batch: N/A Units: mg/L	30-182871		Instrument ID: Lab File ID: Initial Weight/Vo Final Weight/Vo	KONELAB1 KONE11013 ⁷ olume: 2 m olume: 2 m	I01CLB.xls L L
Analyte		Spike Amount	Result	% Re	c. Lii	mit	Qual
Chloride	en en la constanta de la constante de la consta La constante de la constante de	50.0	50.4	101	85	5 - 115	1920-1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1
Duplicate - Bat	tch: 680-182871				Method: 325.2 Preparation: I	2 N/A	
Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61495-5 Water 1.0 10/13/2010 1724 N/A	Analysis Batch: 680-1 Prep Batch: N/A Units: mg/L	82871		Instrument ID: Lab File ID: Initial Weight/Vo Final Weight/Vo	KONELAB1 KONE110131 blume: 2 ml lume: 2 ml	01CLB.xls - -
Analyte		Sample Result/Qua	Re	sult	RPD	Limit	Qual
Chloride		76	76.	.1	0.4	30	

TestAmerica Savannah

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Method Blank - Batch: 680-182871

Client: Solutia Inc.

Method Blank - Batch: 680-180829

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Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 353.2 Preparation: N/A

Lab Sample ID:	MB 680-180829/1	Analysis Batch: 680-180829	Instrument ID:	Latchat 2		
Client Matrix:	Water	Prep Batch: N/A	Lab File ID:	N/A		
Dilution:	1.0	Units: mg/L	Initial Weight/Vol	ume: 2	2	mL
Date Analyzed:	09/22/2010 1658		Final Weight/Volu	ume: 2	>	ml
Date Prepared:	N/A					

Analyte	Result	Qual	RL
Nitrate as N	0.050	U	Δ. Δ. Δ. Δ. Δ. Δ. Δ. Δ.
Nitrate Nitrite as N	0.050	Ŭ	0.050
Nitrite as N	0.050	U	0.050

Lab Control Sample - Batch: 680-180829

Lab Sample ID:	LCS 680-180829/2	Analysis Batch: 680-180829	Instrument ID:	Latchat 2		
Client Matrix:	Water	Prep Batch: N/A	Lab File ID:	N/A		
Dilution:	1.0	Units: mg/L	Initial Weight/Vol	ume: 2	m	nL
Date Analyzed:	09/22/2010 1659		Final Weight/Volu	ume: 2	m	nL.
Date Prepared:	N/A		Ŭ			

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N Nitrate Nitrite as N Nitrite as N	0.500 1.00 0.500	0.510 1.00 0.490	102 100 98	90 - 110 90 - 110	nen en

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Matrix Spike/

Matrix Spike Duplicate Recovery Report - Batch: 680-180829

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

MS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61455-1 Water 1.0 09/22/2010 1702 N/A	Analysis Batch: Prep Batch: N/A	680-180829	Instrument ID: Latchat 2 Lab File ID: N/A Initial Weight/Volume: 10 mL Final Weight/Volume: 10 mL
MSD Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61455-1 Water 1.0 09/22/2010 1703 N/A	Analysis Batch: Prep Batch: N/A	680-180829	Instrument ID: Latchat 2 Lab File ID: N/A Initial Weight/Volume: 10 mL Final Weight/Volume: 10 mL

	<u>% Re</u>	C.					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Nitrate as N	94	94		0.4			
Nitrate Nitrite as N	96	95	90 - 110	0.4	10		
Nitrite as N	98	97	90 - 110	0.3	10		

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Method Blank - Batch: 680-181103

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 353.2 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-181103/1 Water 1.0 09/23/2010 1534 N/A	Analysis Batch: 680-181103 Prep Batch: N/A Units: mg/L	Instrument ID: Lab File ID: Initial Weight/Vo Final Weight/Vol	Latchat 2 N/A lume: lume:	2 2 2	mL mL
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Analyte	Result	Qual	RL
Nitrate as N	0.050	U	0 050
Nitrate Nitrite as N	0.050	Ŭ	0.050
Nitrite as N	0.050	U	0.050

Lab Control Sample - Batch: 680-181103

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Lab Sample ID:	LCS 680-181103/2	Analysis Batch: 680-181103	Instrument ID: Latchat 2
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: N/A
Dilution:	1.0	Units: mg/L	Initial Weight/Volume: 2 ml
Date Analyz <i>e</i> d:	09/23/2010 1535	J. J	Final Weight/Volume: 2 ml
Date Prepared:	N/A		i mar voigna volume. Z me

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N Nitrate Nitrite as N Nitrite as N	0.500 1.00 0.500	0.505 1.00 0.497	101 100 99	90 - 110 90 - 110	

Kg 12/10

Matrix Spike/

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Matrix Spike Duplicate Recovery Report - Batch: 680-181103

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 353.2 Preparation: N/A

MS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61495-1 Water 1.0 09/23/2010 1537 N/A	Analysis Batch: 680-181103 Prep Batch: N/A	Instrument ID: Latchat 2 Lab File ID: N/A Initial Weight/Volume: 10 mL Final Weight/Volume: 10 mL
MSD [*] Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61495-1 Water 1.0 09/23/2010 1538 N/A	Analysis Batch: 680-181103 Prep Batch: N/A	Instrument ID: Latchat 2 Lab File ID: N/A Initial Weight/Volume: 10 mL Final Weight/Volume: 10 mL

	<u>% Rec.</u>						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Nitrate as N	99	98		0.5			
Nitrate Nitrite as N	99	98	90 - 110	0.2	10		
Nitrite as N	99	99	90 - 110	0.5	10		

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Method Blank - Batch: 680-181164

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 353.2 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-181164/1 Water 1.0 09/24/2010 1605 N/A	Analysis Batch: 680-181164 Prep Batch: N/A Units: mg/L	Instrument ID: Latchat 2 Lab File ID: N/A Initial Weight/Volume: 2 mL Final Weight/Volume: 2 mL

Analyte ·	Result	Qual	RL
Nitrate as N	0.050	U	онимализирание улистрание областивности и составляет у торого у колонирование и торого составляется с
Nitrate Nitrite as N	0.050	Ŭ	0.050
Nitrite as N	0.050	U	0.050

Lab Control Sample - Batch: 680-181164

Lab Sample ID:	LCS 680-181164/2	Analysis Batch: 680-181164	Instrument ID: Latchat 2
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: N/A
Dilution:	4.0	Units: mg/L	Initial Weight/Volume: 2 mL
Date Analyzed:	09/24/2010 1605		Final Weight/Volume: 2 mL
Date Prepared:	N/A		-

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N Nitrate Nitrite as N Nitrite as N	0.500 1.00 0.500	0.500 1.00 0.501	100 100 100	90 - 110 90 - 110	



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Matrix Spike/

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Matrix Spike Duplicate Recovery Report - Batch: 680-181164

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

MS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61543-1 Water 1.0 09/24/2010 1605 N/A	Analysis Batch: 6 Prep Batch: N/A	80-181164	Instrument ID: Lab File ID: Initial Weight/Volu Final Weight/Volu	Latchat 2 N/A ume: 1 ime: 1	0 mL 0 mL
MSD Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Preparèd:	680-61543-1 Water 1.0 09/24/2010 1605 N/A	Analysis Batch: 68 Prep Batch: N/A	80-181164	Instrument ID: L Lab File ID: N Initial Weight/Volu Final Weight/Volu	.atchat 2 I/A Ime: 10 me: 10	mL mL

	<u>% Re</u>	<u>.</u>					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Quai	MSD Qual
Nitrate as N	99	99		0.3			
Nitrate Nitrite as N	99	99	90 - 110	0.2	10		
Nitrite as N	100	100	90 - 110	0.06	10		



Method Blank - Batch: 680-181295 Method: 375.4 Preparation: N/A Lab Sample ID: MB 680-181295/1 Analysis Batch: 680-181295 Instrument ID: KONELAB1 Client Matrix: Water Prep Batch: N/A Lab File ID: KONE10928101SO4.xls Dilution: 1.0 Units: mg/L Initial Weight/Volume: 2 mL Date Analyzed: 09/28/2010 1351 Final Weight/Volume: 2 mL Date Prepared: N/A Analyte Result Qual RL Sulfate 5.0 U 5.0 Lab Control Sample - Batch: 680-181295 Method: 375.4 Preparation: N/A Lab Sample ID: LCS 680-181295/2 Analysis Batch: 680-181295 Instrument ID: KONELAB1 Client Matrix: Water Prep Batch: N/A Lab File ID: KONE10928101SO4.xls Dilution: 1.0 Units: mg/L Initial Weight/Volume: 2 mL 09/28/2010 1351 Date Analyzed: Final Weight/Volume: 2 mL Date Prepared: N/A Analyte Spike Amount Result % Rec. Limit Qual Sulfate 20.0 21.4 107 75 - 125 Duplicate - Batch: 680-181295 Method: 375.4 Preparation: N/A Lab Sample ID: 680-61455-3 Analysis Batch: 680-181295 Instrument ID: KONELAB1 **Client Matrix:** Water Prep Batch: N/A Lab File ID: KONE10928101SO4.xls Dilution: 5.0 Units: mg/L Initial Weight/Volume: 2 mL Date Analyzed: 09/28/2010 1454 Final Weight/Volume: 2 mL Date Prepared: N/A Analyte Sample Result/Qual Result RPD Limit Qual Sulfate 69 78.0

Job Number: 680-61455-1 Sdg Number: KPS060

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Client: Solutia Inc.

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Job Number: 680-61455-1 Sdg Number: KPS060

Method: 375.4 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-182273/1 Water 1.0 10/07/2010 1031 N/A	Analysis Batch: 68 Prep Batch: N/A Units: mg/L	30-182273		Instrument ID: KON Lab File ID: KON Initial Weight/Volume Final Weight/Volume	IELAB1 IE11007101SO4A.xls : 2 mL : 2 mL
Analyte		Result		Qual		RL
Sulfate		5.0		U		5.0
Lab Control Sa	mple - Batch: 680-182273				Method: 375.4 Preparation: N/A	
Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	LCS 680-182273/2 Water 1.0 10/07/2010 1031 N/A	Analysis Batch: 68 Prep Batch: N/A Units: mg/L	30-182273		Instrument ID: KON Lab File ID: KON Initial Weight/Volume Final Weight/Volume:	IELAB1 IE11007101SO4A.xls : 2 mL 2 mL
Analyte		Spike Amount	Result	% Rec	c. Limit	Qual
Sulfate Matrix Spike/ Matrix Spike Du	ः ıplicate Recovery Report - E	20.0 Batch: 680-182273	20.6	103	75 - 125 Method: 375.4 Preparation: N/A	
MS Lab Sample I Client Matrix: Dilution: Date Analyzed: Date Prepared:	D: 680-61495-1 Water 5.0 10/07/2010 1136 N/A	Analysis Batch: 68 Prep Batch: N/A	30-182273		Instrument ID: KC Lab File ID: KC Initial Weight/Volume Final Weight/Volume:	NELAB1 NE11007101SO4A.xls : 10 mL 10 mL
MSD Lab Sample Client Matrix: Dilution: Date Analyzed: Date Prepared:	ID: 680-61495-1 Water 5.0 10/07/2010 1220 N/A	Analysis Batch: 68 Prep Batch: N/A	30-182273		Instrument ID: KON Lab File ID: KON Initial Weight/Volume Final Weight/Volume:	ELAB1 E11007101SO4A.xls : 10 mL 10 mL

	<u>% Re</u>	<u>+C.</u>					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Sulfate	98	92	75 - 125	2	30		

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Client: Solutia Inc.

Method Blank - Batch: 680-182273

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 415.1 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-181510/2 Water 1.0 09/29/2010 1246 N/A	Analysis Batch: Prep Batch: N/A Units: mg/L	680-181510		Instrument ID: T Lab File ID: T Initial Weight/Volu Final Weight/Volu	OC3 OC092910.txt me: 25 mL me: 25 mL	
Analyte		Result	:	Qual		RL	
Total Organic Ca	arbon	1.0		U		1.0	
Lab Control Sa	ample - Batch: 680-181510				Method: 415.1 Preparation: N//	A	
Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	LCS 680-181510/4 Water 1.0 09/29/2010 1317 N/A	Analysis Batch: 6 Prep Batch: N/A Units: mg/L	880-181510		Instrument ID: T Lab File ID: T Initial Weight/Volu Final Weight/Volur	OC3 OC092910.txt ne: 25 mL ne: 25 mL	
Analyte		Spike Amount	Result	% Rec	. Limit		Qual
Total Organic Ca	rbon	20.0	20.7	104	80 - 1	20	

Client: Solutia Inc.

Method Blank - Batch: 680-181510

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Job Number: 680-61455-1 Sdg Number: KPS060

Method: 415.1 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-181644/2 Water 1.0 09/30/2010 1303 N/A	Analysis Batch: 68 Prep Batch: N/A Units: mg/L	30-181644		Instrument ID: Lab File ID: Initial Weight/\ Final Weight/\	TOC3 TOC093010.txt Volume: 25 mL Volume: 25 mL	
Analyte		Result		Qual		RL	
Total Organic Ca		1.0	топенатор ет 2019 година и и н. и 18 на наши	U		1.0	aa aha waxaa waxaa waxaa waxaa waxaa waxaa ahaa ah
Lab Control Sa	ample - Batch: 680-181644				Method: 415 Preparation:	.1 ∶N/A	
Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	LCS 680-181644/4 Water 1.0 09/30/2010 1334 N/A	Analysis Batch: 68 Prep Batch: N/A Units: mg/L	30-181644		Instrument ID: Lab File ID: Initial Weight/\ Final Weight/\	TOC3 TOC093010.txt /olume: 25 mL /olume: 25 mL	
Analyte		Spike Amount	Result	% Re	c. L	imit	Qual
Total Organic Ca	irbon	20.0	20.0	100	8	30 - 120	
Duplicate - Bat	ch: 680-181644				Method: 415 Preparation:	.1 N/A	
Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61495-8 Water 1.0 09/30/2010 1705 N/A	Analysis Batch: 680-1 Prep Batch: N/A Units: mg/L	81644		Instrument ID: Lab File ID: Initial Weight/\ Final Weight/\	TOC3 TOC093010.txt /olume: 25 mL /olume: 25 mL	
Analyte		Sample Result/Qua	I R	Result	RPD	Limit	Qual
Total Organic Ca	rbon	11	1	0.8	1	25	

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Client: Solutia Inc.

Method Blank - Batch: 680-181644

Method Blank - Batch: 680-181665

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 415.1 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 680-181663/1-A Water 1.0 09/30/2010 1253 N/A	Analysis Batch: Prep Batch: N/A Units: mg/L	680-181665		Instrument ID: Lab File ID: Initial Weight/V Final Weight/Vo	TOC3 N/A folume: plume: 25	mL	
Analyte		Resu	It	Qual			RL	
Dissolved Organ	ic Carbon-Dissolved	1.0		U			1.0	
Lab Control Sa	mple - Batch: 680-181665				Method: 415. Preparation: I	1 N/A		
Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	LCS 680-181663/2-A Water 1.0 09/30/2010 1253 N/A	Analysis Batch: Prep Batch: N/A Units: mg/L	680-181665		Instrument ID: Lab File ID: Initial Weight/Vo Final Weight/Vo	TOC3 N/A blume: lume: 25	mL	
Analyte		Spike Amount	Result	% Rec	c. Lir	nit		Qual
Dissolved Organi	c Carbon-Dissolved	20.0	20.0	100	80	- 120		

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Matrix Spike/

Matrix Spike Duplicate Recovery Report - Batch: 680-181927

Quality Control Results

Job Number: 680-61455-1 Sdg Number: KPS060

Method: 415.1 Preparation: N/A

MS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61495-2 Water 1.0 10/04/2010 1137 N/A	Analysis Batch: 680-181927 Prep Batch: N/A	Instrument ID: TOC3 Lab File ID: N/A Initial Weight/Volume: Final Weight/Volume: 25 mL
MSD Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61495-2 Water 1.0 10/04/2010 1137 N/A	Analysis Batch: 680-181927 Prep Batch: N/A	Instrument ID: TOC3 Lab File ID: N/A Initial Weight/Volume: Final Weight/Volume: 25 mL

	<u>% Re</u>	<u>C.</u>					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Dissolved Organic Carbon-Dissolved	108	108	80 - 120	0	20		

Duplicate - Batch: 680-181927

Method: 415.1 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	680-61543-5 Water 1.0 10/04/2010 1137 N/A	Analysis Batch: 680-18192 Prep Batch: N/A Units: mg/L	7	Instrument ID: Lab File ID: Initial Weight/V Final Weight/Vo	TOC3 N/A olume: olume: 25 m	ıL
Analyte		Sample Result/Qual	Result	RPD	Limit	Qual
Dissolved Organi	ic Carbon-Dissolved	85	84.7	0.8	30	

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Login Number: 61455

Creator: Daughtry, Beth

List Number: 1 🏾 🏾

Job Number: 680-61455-1 SDG Number: KPS060

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	2 coolers rec'd on ice
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8 and 1.5
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	
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	



Login Number: 61495

Creator: Hornsby, Jess List Number: 1

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Job Number: 680-61455-1 SDG Number: KPS060

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	4 coolers rec'd on ice
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.4, 2.0, 1.6, 0.8 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	DOC requested on filtered samples.
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	N/A	
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.	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	



Login Number: 61543

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List Number: 1

Job Number: 680-61455-1 SDG Number: KPS060

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	2 coolers rec'd on ice
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.8 and 4.2 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	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	MS/MSD not requested (no additional volume
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	

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585 344 7197;



MJW CORPORATION Radiation Consulting Professionals

December 14, 2010

Mr. Duane T. Kreuger Geotechnology, Inc. 11816 Lackland Road Suite 150 St. Louis MO63146 RECEIVED DEC 1 4 2010 GEOTECHNOLOGY

Dear Mr. Kreuger:

As per your request 1 have taken another look at the Total Organic and Dissolved Organic data for SDG's KOM09 and KPS060. I have reviewed the additional data that you supplied December 13, 2010. This data includes tests for the field filtering apparatus. The test results show that the 0.2 micron filters used in the field leached dissolved organic carbon into the samples. Based on this new data I have removed the rejection qualifiers on all samples of Total Organic Carbon. However, the rejection qualifiers are still attached to all samples of Dissolved Organic Carbon. have included the corrected pages in this report. Please replace your existing pages with these revised pages.

If you have any questions concerning this data validation report, please contact me at 585-344-7197.

Very truly yours,

MJW Corporation Inc.

to Guir

Annette Guilds Senior Scientist

CC: David Dooley 2010 1914 File

2010-1918-004

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

KOM09 & KPS060



MJW CORPORATION Radiation Consulting Professionals

November 23, 2010

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 KPS060 has been reviewed for quality assurance validation. Data was reported for Volatiles, Semi-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 data in this report has either been approved for use, approved with qualification, or rejected.

- CPA-MW-5D-0910 (Lab ID: 680-61455-1)
- CPA-MW-5D-F(0.2)-0910 (Lab ID: 680-61455-2)
- BSA-MW-5D-0910 (Lab ID: 680-61455-3)
- BSA-MW-5D-0910-MS (Lab ID: 680-61455-3MS)
- BSA-MW-5D-0910-MSD (Lab ID: 680-61455-3 MSD)
- BSA-MW-5D-F(0.2)-0910 (Lab ID: 680-61455-4)
- Trip Blank #1 (Lab ID: 680-61455-5)
- BSA-MW-4D-0910 (Lab ID: 680-61495-1)
- BSA-MW-4D-F(0.2)-0910 (Lab ID: 680-61495-2)
- CPA-MW-4D-0910 (Lab ID: 680-61495-3)
- CPA-MW-4D-F(0.2)-0910 (Lab ID: 680-61495-4)
- BSA-MW-3D-0910 (Lab ID: 680-61495-5)
- BSA-MW-3D-F(0.2)-0910 (Lab ID: 680-61495-6)
- BSA-MW-3D-0910-EB (Lab ID: 680-61495-7EB)

- CPA-MW-3D-0910 (Lab ID: 680-61495-8)
- CPA-MW-3D-F(0.2)-0910 (Lab ID: 680-61495-9)
- BSA-MW-2D-0910 (Lab ID: 680-61495-10)
- BSA-MW-2D-F(0.2)-0910 (Lab ID: 680-61495-11)
- BSA-MW-1S-0910 (Lab ID: 680-61495-12)
- BSA-MW-1S-F(0.2)-0910 (Lab ID: 680-61495-13)
- Trip Blank #2 (Lab ID: 680-61495-14TB)
- CPA-MW-2D-0910 (Lab ID: 680-61543-1)
- CPA-MW-2D-F(0.2)-0910 (Lab ID: 680-61543-2)
- CPA-MW-2D-0910-AD (Lab ID: 680-61543-3FD)
- CPA-MW-1D-0910 (Lab ID: 680-61543-4)
- CPA-MW-1D-F(0.2)-0910 (Lab ID: 680-61543-5)
- Trip Blank #3 (Lab ID: 680-61543-6TB)
- BSA-MW-1S-0910 (Lab ID: 680-61543-7)

If you have any questions concerning this data validation report, please contact me at 585-344-7197.

Very truly yours,

MJW Corporation Inc.

oto Gun

Annette Guilds Senior Scientist

Approved by:

Kan Heng for D. Dodeg

David A. Dooley, Ph.D., CHP President, MJW Corporation Inc.

Summary Data Qualifiers

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	ţ¢	ient ID	Lab ID	Matrix	DOC		ľ	1
CPA	Ļμ	W5D-0910	680-61455-2	Water	p			
BSA	I-N	W5D-0910	680-61455-4	Water				
BSA	lм	W4D-0910	680-61495-2	Water	D N	filler and a second		
CPA	-M	W4D-0910	680-61495-4	Water	n D			• ••••••
BSA	IM	W3D-0910	680-61495-6	Water	D D			
CPA	IM	W3D-0910	680-61495-9	Water	<u>л</u>			
BSA	IM	V2D-0910	680-61495-11	Water	Γ. D			
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CPA	INN	V2D-0910	680-61543- 2	Water	л. а			
CPA	Inn	V1D-0910	680-61543-5	Water	א ת			
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Data Outlier Forms

		Total and Dissolved A	nalyses	
FICKER SUBJECT COMPANY AND A C				
	Analyte	Total Amt (mg/L)	Dissolved Amt (mg/L)	Qualifier
CPA-IVIVVPD-0910	l Iron	96.00	94.00	ກດກອ
DSALMAKED 0040	Manganese	3.50	3.50	none
DSA-IVIVPD-0910	l Iron	6.40	8.30	hône
BSA MANADIDO10	Manganese	0.41	0.43	none
PEA MAIAD 0040	Iron	10.00	8.30	none
CDA MANAGOOAO	Manganese	0.71	0.68	none
CPANNV40-0910	Iron	11.00	9.90	none
	Manganese	0.24	0.24	none
BEA MAND DOAD	lron	12.00	11.00	попе
CDA MAYO DO40	Manganese	0.57	0.56	none
CPA-WVV3D-D910	Iron	15.00	13.00	ñone
DCA MAND DOLD	Manganese	0.72	0.72	ñone
BOA-IVIVV2U-0910	Iron	4.00	3.00	ΪΛΠΡ
00A-WVV2U-0910	Manganese	0.57	0.53	nona
BSA-MV15-0910	Iron	3.70	0.79	ήληρ
BSA-MVV15-0910	Manganese	0.43	0.33	0010 0000
CPA-MW2D-0910	Iron	5.70	4.70	none
CPA-MW2D-0910	Manganese	0.37	0.34	none
CPA-MW1D-0910	Iron	3.50	1.80	1016
CPA-MW1D-0910	Manganese	0,28	0.14	hóng
CPA-MW5D-0910	200	4.40	8.40	
BSA-MW50-0910	DOC	6.10	81.00	<u>n</u>
BSA-MW40-0910	DOC	5.40	9.80	n
CPA-MW40-0910	DOC	6.50	10.00	r.
BSA-MW3D-0910	DOC	4.40	8.40	
CPA-MW30-0910	DOC	11.00	15.00	7
BSA-MW20-0910	DOC	5,90	940	n n
BSA-MW19-0010	DOC	7.60	14 00	n n
CPA-MW2D-0910	DOC	11.00	86.00	
CPA-MW10-0910	DOC	15.00	85 00	<u> </u>
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Data Package: KPS060 ptr 1/4/10

Date: 12/14/2010

DVP-4 Attachment 5

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE NO.: _____ SDG NO.: <u>KPS060</u> LABORATORY: <u>Test America</u> SITE: <u>Solutia W.G. Krummrich Plant</u> (LTM Site)

DATA ASSESSMENT

The current SOP No. HW-6 (Revision 11), June 1996 for CLP Organics Review and Preliminary Review has been applied.

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.

Signature: _ and Gull	Date:
MJW Approval: And stand	Date: <u>11/23/2010</u>

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Attachment 5

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".

The following analytes in the sample shown were qualified for %RSD and %D:

<u>Continuing calibration-VOA's</u>: Some analytes have %D>25. These analytes are not required for this data package so no samples have been qualified.

<u>Initial calibration-BNA's:</u> Some analytes have %D>30. These analytes are not required for this data package so no samples have been qualified.

<u>Continuing calibration-BNA's</u>: Some analytes have %D>25. These analytes are not required for this data package so no samples have been qualified.

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.

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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 \pm 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: None

- 11. FIELD DOCUMENTATION: None
- 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

DVP-4 Attachment 6

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

DPO: [] Action [] FYI	
CASE/SAS NO.:	LABORATORY: Test America
SDG NO.: <u>KPS060</u>	DATA USER: Geotechnology, Inc.
SOW:	REVIEW COMPLETION DATE: <u>11/23/2010</u>
NO. OF SAMPLES: <u>18</u> WATE	R SOIL OTHER

REVIEWER: [] ESD [] ESAT [X] OTHER, CONTRACTOR MJW Corporation, Inc.

QC ITEM	VOA	BNA	PEST	
HALDING THE FROM				
HOLDING TIMES	0	0	N/A	
GC-MS PERFORMANCE	0	0	N/A	
INITIAL CALIBRATIONS	0	0	N/A	
CONTINUING CALIBRATIONS	0	0	N/A	
FIELD BLANKS ($F = N/A$)	0	0	N/A	
LABORATORY BLANKS	0	0	N/A	
SURROGATES	0	0	N/A	
MATRIX SPIKE/DUPLICATES	0	0	N/A	
QC SAMPLES (LCS, PVS)	0	0	N/A	
INTERNAL STANDARDS	0	0	N/A	
COMPOUND IDENTIFICATION	0	0	N/A	
COMPOUND QUANTITATION	0	0	N/A	
SYSTEM PERFORMANCE	0	0	N/A	
OVERALL ASSESSMENT	0	0	N/A	

O = No problems or minor problems that do not affect data usability.

X = No more than about 5% of the data points are qualified as either estimated or unusable.

M = More than about 5% of the data points are qualified as either estimated or unusable.

Z = More than about 5% of the data points are qualified as unusable.

DPO ACTION ITEMS: _____

AREAS OF CONCERN:_____

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Attachment 6
DVP-4 Attachment 7

DATA REJECTION SUMMARY

DATA REJECTION SUMMARY

 Type of Review:
 Level IV
 Date:
 11/23/2010

 Site Name:
 Solutia W.G. Krummrich Plant (LTM Site)
 Lab Name:

e: <u>11/23/2010</u> Lab Name: Test America

SDG No.: KPS060

Reviewer's Initials: ______

Number of Samples: <u>18</u>

Analytes Rejected Due to Exceeding Review Criteria For:

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Rejected/	Fotal # in All S	amples
VOA(33)									1	=	%
ACID(14)									/	=	%
B/N(50)									/	=	%
PEST(21)									/		%
PCB(7)									/	=	%

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITERIA.

Analytes Estimated Due to Exceeding Review Criteria For:

Surrogates Holding Time Calibration Contamination ID Internal Other Total # of Total # Estimated/Total # in All Samples Standards Samples VOA(33) 1 = % ACID(14) % B/N(50) % PEST(21) 1 % **==** PCB(7) 1 = %

No. of Compounds/No. of Fractions (Samples)

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITERIA.

DVP-4 Attachment 8

Acronyms and Data Qualifiers

Acronyms and Data Qualifiers

Acronyms

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BFB - bromofluorobenzene BHC - benzene hexachloride BNA - base neutral acid CCS - contract compliance screening CLASS - Contract Laboratory Analytical Services Support CLP - Contract Laboratory Program CRQL - Contract Required Quantitation Limit %D - percent difference DCB -decachlorobiphenyl DDD - dichlorodiphenyldichloroethane DDE - dichlorodiphenylethane DDT - dichlorodiphenyltrichloroethane GC - gas chromatography GC/EC - gas chromatograph/electron capture detector GC/MS - gas chromatograph/mass spectrometer GPC - gel permeation chromatography IS - internal standard kg - kilogram µg - microgram MAGIC - Mainframe Access Graphical Interface with CARD MS - matrix spike MSD - matrix spike duplicate 1 - liter ml - mililiter PCB - polychlorinated biphenyl PE - performance evaluation PEM - Performance Evaluation Mixture QC - quality control RAS - Routine Analytical Services RIC - reconstructed ion chromatogram RPD - relative percent difference RRF - relative response factor RRF - average relative response factor (from initial calibration) RRT - relative retention time RSD - relative standard deviation RT - retention time

RSCC - Regional Sample Control Center

SDG - sample delivery group

SMC - system monitoring compound

SOP - standard operating procedure

SOW - Statement of Work

SVOA - semivolatile organic analysis

TCL - Target Compound List

TCLP - Toxicity Characteristics Leachate Procedure

TCX -tetrachloro-m-xylene

TIC - tentatively identified compound

TPO - technical project officer

VOA - volatile organic analysis

VTSR - validated time of sample receipt

Data Qualifiers

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. The analysis indicates the presence of an analyte for which there is presumptive Ν evidence to make a "tentative identification." The analysis indicates the presence of an analyte that has been "tentatively NJ identified" and the associated numerical value represents its approximate concentration. UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

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, It 11816 Lackland F	nc. Road		Phone:	314.997.7740
	St. Louis, MO 63	146		Fax:	314.997.2067
Identifier:	079HJ	Date Rec:	10/27/2010	Repo	ort Date: 11/18/2010
Client Proj	ect #: J017210.02	2	Client Projec	ct Name: Sol	utia
Purchase (Order #:				
Analysis R	equested:	PLFA, Stable Is	sotope Probing		

Reviewed By:

Swaw & Seuris

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

Client: Project:	Geotechnology, Inc. Solutia			MI Project Number: Date Received:	: 079HJ 10/27/2010)
Sample Infor	rmation					
Sample Name:		BSAMW01S-101 0	BSAMW02D-101 0	BSAMW02D- 1010	BSAMW03D-1 010	BSAMW04D-10 10
Sample Date:		10/25/2010	10/25/2010	10/25/2010	10/25/2010	10/25/2010
Sample Matrix:		Std. Bio-Trap	Std. Bio-Trap	Adv. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap
Analyst:		BJ	BJ	BJ	BJ	BJ
Biomass Co	ncentrations					
Total Bioma	ass (cells/bead)	9.90E+05	4.62E+05	1.64E+06	3.11E+05	2.48E+05
Community	Structure (% total PLFA)					
Firmicutes ((TerBrSats)	1.21	2.02	0.73	3.01	3.17
Proteobacte	eria (Monos)	50.58	82.13	81.79	56.69	64.87
Anaerobic r	metal reducers (BrMonos)	0.00	0.00	0.00	0.00	0.00
SRB/Actino	mycetes (MidBrSats)	0.00	0.00	0.00	1.45	1.91
General (Ne	sats)	45.94	14.07	17.48	34.47	25.79
Eukaryotes	(polyenoics)	2.29	1.78	0.00	4.38	4.26
Physiologica	al Status (Proteobacteria on	ly)				
Slowed Gro	owth	0.12	0.13	0.01	0.26	0.15
Decreased	Permeability	0.89	0.20	0.03	0.48	0.38

Legend: NA = Not Analyzed NS = Not Sampled



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.

Client: Project:	Geotechnology, Inc. Solutia			MI Project Number: Date Received:	: 079HJ 10/27/2010)
Sample Infor	mation					
Sample Name:		BSAMW05D-101 0	CPAMW01D-101 0	CPAMW02D- 1010	CPAMW03D-1 010	CPAMW03D-10 10
Sample Date:		10/25/2010	10/25/2010	10/25/2010	10/25/2010	10/25/2010
Sample Matrix:		Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap	Adv. Bio-Trap
Analyst:		BJ	BJ	BJ	BJ	BJ
Biomass Co	ncentrations					
Total Bioma	iss (cells/bead)	3.35E+05	7.87E+04	2.33E+05	5.46E+05	9.23E+05
Community	Structure (% total PLFA)					
Firmicutes (TerBrSats)	2.74	0.00	6.27	5.45	2.39
Proteobacte	eria (Monos)	62.43	53.29	56.72	55.51	52.18
Anaerobic n	netal reducers (BrMonos)	2.16	0.00	0.00	0.00	0.00
SRB/Actino	mycetes (MidBrSats)	2.81	0.00	2.29	0.89	11.52
General (Ns	sats)	25.60	46.70	28.99	31.15	28.47
Eukaryotes	(polyenoics)	4.26	0.00	5.75	7.01	5.44
Physiologica	al Status (Proteobacteria onl	у)				
Slowed Gro	wth	0.08	0.00	0.00	0.00	0.28
Decreased	Permeability	0.32	0.00	0.47	0.46	0.71

Legend: NA = Not Analyzed NS = Not Sampled



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.

Client: Project:	Geotechnology, Inc. Solutia			MI Project Number: Date Received:	079HJ 10/27/2010
Sample Infor	rmation				
Sample Name:		CPAMW04D-101	CPAMW05D-101		
Sample Date:		0 10/25/2010	0 10/25/2010		
Sample Matrix:		Std. Bio-Trap	Std. Bio-Trap		
Analyst:		BJ	BJ		
Biomass Co	ncentrations				
Total Bioma	ass (cells/bead)	2.47E+05	6.74E+04		
Community	Structure (% total PLFA)				
Firmicutes ((TerBrSats)	5.57	8.67		
Proteobacte	eria (Monos)	61.98	54.21		
Anaerobic r	metal reducers (BrMonos)	0.00	0.00		
SRB/Actino	mycetes (MidBrSats)	1.97	4.09		
General (Na	sats)	26.69	24.31		
Eukaryotes	(polyenoics)	3.80	8.71		
Physiologica	al Status (Proteobacteria on	ly)			
Slowed Gro	wth	0.00	0.00		
Decreased	Permeability	0.31	0.30		

Legend: NA = Not Analyzed NS = Not Sampled



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.



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 ~10⁴ 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 ~10⁵ to ~10⁶ 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 <i>Clostridia/Bacteriodes</i> -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 H₂ 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 H₂. 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 H₂, 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
 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.huberlin.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.
- 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.
- 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.
- 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.
- 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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Stable Isotope Probing (SIP) Study

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Executive Summary

Bio-Trap[®] samplers baited with ¹³C labeled benzene or chlorobenzene were deployed for 31 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 ¹³C benzene sampler (~10⁶ cells/bead) and in the ¹³C chlorobenzene sampler (~10⁵ cells/bead).
- Quantification of ¹³C enriched biomass demonstrated a high level of utilization of the ¹³C benzene in well BSA-MW02D-1010. There was a moderate amount of incorporation of ¹³C chlorobenzene into the biomass in well CPA-MW03D-1010.
- Quantification of the ¹³C dissolved inorganic carbon (DIC) showed a high level of mineralization occurring in the ¹³C benzene sampler. There was a low level of mineralization occurring in the ¹³C chlorobenzene sampler.
- Comparison of pre- and post-deployment concentrations of ¹³C labeled benzene and ¹³C labeled chlorobenzene demonstrated little, if any, loss of the labeled contaminants.

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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 (¹²C) which accounts for 99% of carbon and carbon 13 (¹³C) 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 ¹³C labeled carbon. Since ¹³C 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 ¹³C).
- Quantification of ¹³C enriched phospholipid fatty acids (PLFA) indicates incorporation into microbial biomass.
- Quantification of ¹³C 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 ¹³C 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-MW02D-1010	CPA-MW03D-1010
¹³ C Contaminant Loss		
Benzene Pre-deployment (mg/bd)	1.01	
Benzene Post-deployment (mg/bd)	1.08	
Chlorobenzene Pre-deployment (mg/bd)		1.06
Chlorobenzene Post-deployment (mg/bd)		1.04
% Loss	Not calculated	2%
Biomass & ¹³ C Incorporation		
Total Biomass (Cells/bd)	1.64E+06	9.23E+05
¹³ C Enriched Biomass (Cells/bd)	2.09E+05	1.03E+04
% ¹³ C Incorporation	12.74%	1.12%
Average PLFA Del (‰)	7870	175
Maximum PLFA Del (‰)	14303	1435
¹³ C Mineralization		
DIC Del (‰)	6827	75
% 13C	7.96	1.17
Community Structure (% total PLFA)		
Firmicutes (TerBrSats)	0.7	2.4
Proteobacteria (Monos)	81.8	52.2
Anaerobic metal reducers (BrMonos)	0.0	0.0
Actinomycetes (MidBrSats)	0.0	11.5
General (Nsats)	17.5	28.5
Eukaryotes (Polyenoics)	0.0	5.4
Physiological Status (Proteobacteria only)		
Slowed Growth	0.01	0.28
Decreased Permeability	0.03	0.71

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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 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 ¹³C 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 ¹³C 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 ¹³C 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 ¹³C 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 ¹³C enriched PLFA is also determined to conclusively demonstrate contaminant biodegradation and quantify incorporation into biomass as a result of the ¹³C being used for cellular growth. The % ¹³C incorporation (¹³C 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 % ¹³C incorporation value could be low despite significant ¹³C labeled biomass and loss of the compound. The % ¹³C incorporation should be viewed in light of total biomass, percent loss, and dissolved inorganic carbon (DIC) results.

¹³C 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 ¹³C). 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 ¹³C labeled compound into PLFA results in a larger ¹³C/¹²C 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		



Dissolved Inorganic Carbon (DIC): Often, bacteria can utilize the ¹³C labeled compound as both a carbon and energy source. The ¹³C portion used as a carbon source for growth can be incorporated into PLFA as discussed above, while the ¹³C used for energy is oxidized to ¹³CO₂ (mineralized).

 13 C enriched CO₂ data is often reported as a del value as described above for PLFA. Under natural conditions, the R_x of CO₂ 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 CO₂ 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 %¹³C 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 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 $\rm H_2$ 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							



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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Sample Information								CENSUS: Please select the target organism/gene																										
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	JLFA	VFA	WE/E	DGGE+3ID	DGGE+5ID	qDHC (Dehalococcoides)	DHC Functional genes (bvc, tce, vcr)	qDHB (Dehalobacter)	qDSM (Desulfuromonas)	qDSB (Desulfitobacterium)	qEBAC (Total)	qDSR (SRBs only)	qSRB/IRB	qMGN (methanogens)	qMOB (methanotrophs)	qDNF (Dentritying)	qAOB (ammonia oxidizing)	qPM1 (MTBE aerobic)	qTOD (Intial PAHs aerobic)	qPHE (aerobic BTEX)	qBSS (Toluen/Xylene Anaerobic)	qNAH (Napthalene aerobic)	add. qPCR:	add. qPCR:	add. qPCR:	RNA (Expression Option)*	Oil Retention benzene SID	Other Chloro-Denz SI	Other:	Other:
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In order for analysis to be completed correctly, it is vital that chain of custody is filled out correctly & that all relative information is provided. Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable. Most analyses have a 24-48 hour hold time. * additional cost and sample preservation are associated with RNA samples.