DENR USE ONLY: ☐ Paper Report ☐ Electronic Data - Email CD (data loaded: Yes / No) Doc/Event #:

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

Notice: This form and any information attached to it are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

Instructions:

- **Prepare one form for each individually monitored unit.**
- **Please type or print legibly.**
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i).
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

RECEIVED AUG 17 2012 SOLID WASTE SECTION

Name of entity submitting data (laboratory, consultant, facility owner):

Premier Environmental Services, PC

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address

Name: Patrick Kelley Phone: 678-569-2860

E-mail: pkelley@earthcon.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Low Ground Landfill Roanoke Rapids, NC	Kapstone Mill 100 Gaston Road Roanoke Rapids, NC	42 03	.0500	May 30-31, 2012

Environmental Status: (Check all that apply)

☐ Initial/Background Monitoring ☒ Detection Monitoring ☐ Assessment Monitoring ☐ Corrective Action

Type of data submitted: (Check all that apply)

☒ Groundwater monitoring data from monitoring wells
☐ Groundwater monitoring data from private water supply wells
☐ Leachate monitoring data
☐ Surface water monitoring data
☐ Methane gas monitoring data
☐ Corrective action data (specify) _____
☐ Other(specify) _____

Notification attached?

☐ No. No groundwater or surface water standards were exceeded.
☒ Yes, a notification of values exceeding a groundwater or surface water standard is attached. It includes a list of groundwater and surface water monitoring points, dates, analytical values, NC 2L groundwater standard, NC 2B surface water standard or NC Solid Waste GWPS and preliminary analysis of the cause and significance of any concentration.
☐ Yes, a notification of values exceeding an explosive methane gas limit is attached. It includes the methane monitoring points, dates, sample values and explosive methane gas limits.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of a fine and imprisonment.

Peter E. Ramsey — Facility Representative Name (Print)
Senior Geologist — Title
678-569-2882 — (Area Code) Telephone Number

Peter E Ramsey — Signature
8/14/12 — Date

Affix NC Licensed/ Professional Geologist Seal

NORTH CAROLINA LICENSED SEAL 2107 GEOLOGIST PETER E. RAMSEY

Facility Representative Address

NC PE Firm License Number (if applicable effective May 1, 2009)

Revised 6/2009

PREMIER
ENVIRONMENTAL, PC

West 1880 Oak Parkway
Building 100, Suite 106
Marietta, GA 30062

Phone 770.973.2100
Fax 770.973.7395
www.premiercorp-usa.com

August 15, 2012

RECEIVED
AUG 17 2012
WASTE SECTION

Don Heardon
Compliance Unit
NCDENR-DVM, Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646

RE: Facility Permit # 4203
Low Ground Landfill Semi-annual Environmental Monitoring Report
Roanoke Rapids, NC

Dear Mr. Heardon;

On behalf of International Paper, Premier Environmental PC (Premier) is submitting the attached Semi-annual Environmental Monitoring Report for the May 2012 sampling event at the above referenced site. Also enclosed is the North Carolina (NC) Solid Waste Section summary table along with the laboratory report from Columbia Analytical Services, and the Premier Quality Assurance Review of the laboratory data.

The May 2012 sampling activities were conducted by Premier. Depth to groundwater measurements were obtained from the five site monitoring wells (MW-LG1, MW-LG3, MW-LG5, MW-LG6, and MW-LG7), and the monitoring wells were then purged and sampled according to EPA protocol. Copies of the field sampling forms and field notes completed by Premier personnel are attached to this report. The groundwater samples were preserved according to EPA protocol and shipped to ALS (formerly Columbia Analytical Services) Laboratory in Jacksonville, Florida, a North Carolina certified laboratory. The analytical results for this sampling event are attached.

With the exception of iron, manganese and sulfate, the laboratory analysis of samples collected from site monitoring wells were below the applicable NC 2L standards.

- The results of two groundwater samples (MW-LG1 and MW-LG5) exceeded the NC 2L standard of 300 ug/L for iron.
- The results of five groundwater samples (MW-LG1, MW-LG3, MW-LG5, MW-LG6 and MW-LG7) exceeded the NC 2L standard of 50 ug/L for manganese.
- The result of one groundwater sample (MW-LG3) exceeded the NC 2L standard of 250 mg/L for sulfate.

The iron, manganese and sulfate results are consistent with historical sampling data and will continue to be monitored to document trends. The iron and manganese are considered to be naturally occurring and within the range of background concentrations reported for up gradient monitoring well MW-LG1. The Solid Waste Section has waived the requirement to prepare a Water Quality Assessment Plan for this site.

Premier continues to concur with this waiver and does not recommend any changes to the monitoring program at this time. If you have any questions or comments on this report, call (770) 973-2100.

Sincerely,

Patrick Kelley, CHMM
Senior Scientist

Peter E. Ramsey, PG
Senior Geologist

cc: Phil Slowiak, International Paper

International Paper **100 Gaston Road Low Ground Landfill**

Roanoke Rapids Mill **Roanoke Rapids, NC Monitoring Wells**

Sampled on 5/30-31/12 by J. McCormick of Premier Environmental PC | Contact: Patrick Kelley, Premier Environmental PC

Samples were analyzed by CAS, Inc NC Cert. #: 527 | Phone 770-973-2100 #2860 or email, pkelley@premiercorp-usa.com

FACILITY PERMIT	SAMPLE ID	CAS Number	SWS ID	PARAMETER	RESULT	UNITS	LAB QUALIFIER	DILUTION FACTOR	COLLECT DATE	EXTRACTION DATE	ANALYSIS DATE
42-03	MW-LG 1	7440-38-2	14	Arsenic	0.5	ug/L	J	1.0	5/31/12	6/6/12	6/7/12
42-03	MW-LG 1	7440-39-3	15	Barium	100	ug/L		1.0	5/31/12	6/6/12	6/7/12
42-03	MW-LG 1	316	316	Biochemical Oxygen Demand	18.6	mg/L	J	2.0	5/31/12	NA	6/1/12
42-03	MW-LG 1	7440-43-9	34	Cadmium	0.10	ug/L	U	1.0	5/31/12	6/6/12	6/7/12
42-03	MW-LG 1	317	317	Chemical Oxygen Demand	35	mg/L		1.0	5/31/12	6/5/12	6/5/12
42-03	MW-LG 1	16887-00-6	301	Chloride	3.27	mg/L		1.0	5/31/12	NA	6/1/12
42-03	MW-LG 1	7440-47-3	51	Chromium	1.8	ug/L		1.0	5/31/12	6/6/12	6/7/12
42-03	MW-LG 1	7440-50-8	54	Copper	3.8	ug/L		1.0	5/31/12	6/6/12	6/7/12
42-03	MW-LG 1	16984-48-8	312	Fluoride	0.16	mg/L	J	1.0	5/31/12	NA	6/1/12
42-03	MW-LG 1	7439-89-6	340	Iron	5.39	mg/L		1.0	5/31/12	6/4/12	6/5/12
42-03	MW-LG 1	7439-92-1	131	Lead	1.62	ug/L		1.0	5/31/12	6/6/12	6/7/12
42-03	MW-LG 1	7439-96-5	342	Manganese	432	ug/L		1.0	5/31/12	6/6/12	6/7/12
42-03	MW-LG 1	7439-97-6	132	Mercury	0.03	ug/L	J	1.0	5/31/12	6/4/12	6/5/12
42-03	MW-LG 1	14797-55-8	303	Nitrate	0.03	mg/L	U	1.0	5/31/12	NA	6/1/12
42-03	MW-LG 1	321	321	pH - Lab	6.34	pH UNITS	J	1.0	5/31/12	NA	6/1/12
42-03	MW-LG 1	7782-49-2	183	Selenium	1.1	ug/L	U	1.0	5/31/12	6/6/12	6/7/12
42-03	MW-LG 1	7440-22-4	184	Silver	0.06	ug/L	U	1.0	5/31/12	6/6/12	6/7/12
42-03	MW-LG 1	14808-79-8	315	Sulfate	10.5	mg/L		1.0	5/31/12	NA	6/1/12
42-03	MW-LG 1	311	311	Total Dissolved Solids	169	mg/L		1.0	5/31/12	NA	6/5/12
42-03	MW-LG 1	E-10195	357	Total Organic Carbon	5.1	mg/L		1.0	5/31/12	NA	6/7/12
42-03	MW-LG 1	7440-66-6	213	Zinc	2.7	ug/L	J	1.0	5/31/12	6/6/12	6/7/12
42-03	MW-LG 1			Total Organic Halides	0.0300	mg/L	U	1.0	5/31/12	NA	6/26/12
42-03	MW-LG 3	7440-38-2	14	Arsenic	0.50	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG 3	7440-39-3	15	Barium	45.3	ug/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG 3	316	316	Biochemical Oxygen Demand	4.0	mg/L	UJ	2.0	5/30/12	NA	6/1/12
42-03	MW-LG 3	7440-43-9	34	Cadmium	0.10	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG 3	317	317	Chemical Oxygen Demand	23	mg/L	J	1.0	5/30/12	6/5/12	6/5/12
42-03	MW-LG 3	16887-00-6	301	Chloride	56.6	mg/L	J	1.0	5/30/12	NA	6/1/12
42-03	MW-LG 3	7440-47-3	51	Chromium	0.5	ug/L	J	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG 3	7440-50-8	54	Copper	1.1	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG 3	16984-48-8	312	Fluoride	0.30	mg/L		1.0	5/30/12	NA	5/31/12
42-03	MW-LG 3	7439-89-6	340	Iron	0.03	mg/L	J	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG 3	7439-92-1	131	Lead	0.12	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG 3	7439-96-5	342	Manganese	573	ug/L		1.0	5/30/12	6/1/12	6/6/12
42-03	MW-LG 3	7439-97-6	132	Mercury	0.02	ug/L	U	1.0	5/30/12	5/31/12	6/1/12
42-03	MW-LG 3	14797-55-8	303	Nitrate	10.1	mg/L		1.0	5/30/12	NA	5/31/12
42-03	MW-LG 3	321	321	pH - Lab	6.78	pH UNITS	J	1.0	5/30/12	NA	5/31/12
42-03	MW-LG 3	7782-49-2	183	Selenium	1.1	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG 3	7440-22-4	184	Silver	0.06	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG 3	14808-79-8	315	Sulfate	295	mg/L		5.0	5/30/12	NA	6/1/12
42-03	MW-LG 3	311	311	Total Dissolved Solids	1210	mg/L		2.0	5/30/12	NA	6/5/12
42-03	MW-LG 3	E-10195	357	Total Organic Carbon	6.3	mg/L		1.0	5/30/12	NA	6/7/12

International Paper **100 Gaston Road Low Ground Landfill**

Roanoke Rapids Mill **Roanoke Rapids, NC** **Monitoring Wells**

Sampled on 5/30-31/12 by J. McCormick of Premier Environmental PC | Contact: Patrick Kelley, Premier Environmental PC

Samples were analyzed by CAS, Inc NC Cert. #: 527 | Phone 770-973-2100 #2860 or email, pkelley@premiercorp-usa.com

FACILITY PERMIT	SAMPLE ID	CAS Number	SWS ID	PARAMETER	RESULT	UNITS	LAB QUALIFIER	DILUTION FACTOR	COLLECT DATE	EXTRACTION DATE	ANALYSIS DATE
42-03	MW-LG 3	7440-66-6	213	Zinc	1.6	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG 3			Total Organic Halides	0.0557	mg/L		1.0	5/30/12	NA	6/26/12
42-03	MW-LG5	7440-38-2	14	Arsenic	1.4	ug/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG5	7440-39-3	15	Barium	128	ug/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG5	316	316	Biochemical Oxygen Demand	26.1	mg/L	J	1.0	5/30/12	NA	6/1/12
42-03	MW-LG5	7440-43-9	34	Cadmium	0.1	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG5	317	317	Chemical Oxygen Demand	35	mg/L		1.0	5/30/12	6/5/12	6/5/12
42-03	MW-LG5	16887-00-6	301	Chloride	2.99	mg/L		1.0	5/30/12	NA	5/31/12
42-03	MW-LG5	7440-47-3	51	Chromium	1.6	ug/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG5	7440-50-8	54	Copper	1.9	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG5	16984-48-8	312	Fluoride	0.19	mg/L	J	1.0	5/30/12	NA	5/31/12
42-03	MW-LG5	7439-89-6	340	Iron	15.2	mg/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG5	7439-92-1	131	Lead	0.29	ug/L	J	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG5	7439-96-5	342	Manganese	13700	ug/L		100	5/30/12	6/1/12	6/6/12
42-03	MW-LG5	7439-97-6	132	Mercury	0.02	ug/L	U	1.0	5/30/12	5/31/12	6/1/12
42-03	MW-LG5	14797-55-8	303	Nitrate	0.16	mg/L	J	1.0	5/30/12	NA	5/31/12
42-03	MW-LG5	321	321	pH - Lab	6.20	pH UNITS	J	1.0	5/30/12	NA	5/31/12
42-03	MW-LG5	7782-49-2	183	Selenium	1.1	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG5	7440-22-4	184	Silver	0.06	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG5	14808-79-8	315	Sulfate	229	mg/L		5.0	5/30/12	NA	6/1/12
42-03	MW-LG5	311	311	Total Dissolved Solids	634	mg/L		1.0	5/30/12	NA	6/5/12
42-03	MW-LG5	E-10195	357	Total Organic Carbon	5.9	mg/L		1.0	5/30/12	NA	6/7/12
42-03	MW-LG5	7440-66-6	213	Zinc	11.2	ug/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG5			Total Organic Halides	0.03	mg/L	U	1.0	5/30/12	NA	6/26/12
42-03	MW-LG6	7440-38-2	14	Arsenic	0.50	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG6	7440-39-3	15	Barium	419	ug/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG6	316	316	Biochemical Oxygen Demand	38.0	mg/L	J	1.0	5/30/12	NA	6/1/12
42-03	MW-LG6	7440-43-9	34	Cadmium	0.10	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG6	317	317	Chemical Oxygen Demand	67	mg/L		1.0	5/30/12	6/5/12	6/5/12
42-03	MW-LG6	16887-00-6	301	Chloride	21.9	mg/L		2.0	5/30/12	NA	6/1/12
42-03	MW-LG6	7440-47-3	51	Chromium	3.6	ug/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG6	7440-50-8	54	Copper	1.0	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG6	16984-48-8	312	Fluoride	0.28	mg/L		1.0	5/30/12	NA	5/31/12
42-03	MW-LG6	7439-89-6	340	Iron	0.14	mg/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG6	7439-92-1	131	Lead	0.12	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG6	7439-96-5	342	Manganese	1090	ug/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG6	7439-97-6	132	Mercury	0.02	ug/L	U	1.0	5/30/12	5/31/12	6/1/12
42-03	MW-LG6	14797-55-8	303	Nitrate	0.03	mg/L	U	1.0	5/30/12	NA	5/31/12
42-03	MW-LG6	321	321	pH - Lab	6.93	pH UNITS	J	1.0	5/30/12	NA	5/31/12
42-03	MW-LG6	7782-49-2	183	Selenium	1.1	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG6	7440-22-4	184	Silver	0.06	ug/L	U	1.0	5/30/12	6/1/12	6/4/12

International Paper **100 Gaston Road Low Ground Landfill**

Roanoke Rapids Mill **Roanoke Rapids, NC Monitoring Wells**

Sampled on 5/30-31/12 by J. McCormick of Premier Environmental PC | Contact: Patrick Kelley, Premier Environmental PC

Samples were analyzed by CAS, Inc NC Cert. #: 527 | Phone 770-973-2100 #2860 or email, pkelley@premiercorp-usa.com

FACILITY PERMIT	SAMPLE ID	CAS Number	SWS ID	PARAMETER	RESULT	UNITS	LAB QUALIFIER	DILUTION FACTOR	COLLECT DATE	EXTRACTION DATE	ANALYSIS DATE
42-03	MW-LG6	14808-79-8	315	Sulfate	92.0	mg/L		2.0	5/30/12	NA	6/1/12
42-03	MW-LG6	311	311	Total Dissolved Solids	2080	mg/L		4.0	5/30/12	NA	6/5/12
42-03	MW-LG6	E-10195	357	Total Organic Carbon	18.8	mg/L		1.0	5/30/12	NA	6/7/12
42-03	MW-LG6	7440-66-6	213	Zinc	4.4	ug/L	J	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG6			Total Organic Halides	0.033	mg/L	U	1.0	5/30/12	NA	6/26/12
42-03	MW-LG7	7440-38-2	14	Arsenic	0.5	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG7	7440-39-3	15	Barium	118	ug/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG7	316	316	Biochemical Oxygen Demand	4.0	mg/L	UJ	2.0	5/30/12	NA	6/1/12
42-03	MW-LG7	7440-43-9	34	Cadmium	0.10	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG7	317	317	Chemical Oxygen Demand	20	mg/L	U	1.0	5/30/12	6/5/12	6/5/12
42-03	MW-LG7	16887-00-6	301	Chloride	17.1	mg/L		1.0	5/30/12	NA	6/1/12
42-03	MW-LG7	7440-47-3	51	Chromium	0.80	ug/L	J	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG7	7440-50-8	54	Copper	1.0	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG7	16984-48-8	312	Fluoride	0.24	mg/L	J	1.0	5/30/12	NA	5/31/12
42-03	MW-LG7	7439-89-6	340	Iron	0.17	mg/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG7	7439-92-1	131	Lead	0.12	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG7	7439-96-5	342	Manganese	265	ug/L		1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG7	7439-97-6	132	Mercury	0.02	ug/L	U	1.0	5/30/12	5/31/12	6/1/12
42-03	MW-LG7	14797-55-8	303	Nitrate	0.26	mg/L	J	1.0	5/30/12	NA	5/31/12
42-03	MW-LG7	321	321	pH - Lab	7.08	pH UNITS	J	1.0	5/30/12	NA	5/31/12
42-03	MW-LG7	7782-49-2	183	Selenium	1.1	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG7	7440-22-4	184	Silver	0.06	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG7	14808-79-8	315	Sulfate	66.2	mg/L		1.0	5/30/12	NA	6/1/12
42-03	MW-LG7	311	311	Total Dissolved Solids	1480	mg/L		4.0	5/30/12	NA	6/5/12
42-03	MW-LG7	E-10195	357	Total Organic Carbon	4.8	mg/L	U	1.0	5/30/12	NA	6/7/12
42-03	MW-LG7	7440-66-6	213	Zinc	1.6	ug/L	U	1.0	5/30/12	6/1/12	6/4/12
42-03	MW-LG7			Total Organic Halides	0.0300	mg/L	U	1.0	5/30/12	NA	6/26/12

U - Undetected above the MRL/MDL
J - Estimated value

July 05, 2012

Service Request No: J1202543

Mr. Peter Ramsey
EarthCon Site Services Inc
1880 West Oak Parkway
Building 100, Suite 106
Marietta, GA 30062

Laboratory Results for: IP-Roanoke Rapids

Dear Mr.Ramsey,

Enclosed are the results of the sample(s) submitted to our laboratory May 31, 2012
For your reference, these analyses have been assigned our service request number **J1202543.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. If required, the laboratory can provide uncertainty measurements for each method employed in sample analysis; this uncertainty measurement would be generated using method validation studies and the laboratory's quality control data.

Please contact me if you have any questions. My extension is 4410. You may also contact me via email at JAllen@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Enviromental

Jerry Allen
Project Manager

Columbia Analytical Services™

ADDRESS 9143 Philips Highway, Suite 200, Jacksonville, FL 32256
PHONE +1 904 739 2277 | FAX +1 904 739 2011
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company

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Client: EarthCon Site Services Inc
Project: IP-Roanoke Rapids/300018
Sample Matrix: Water

Service Request: J1202543
Date Received: 5/31/12

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables, including results of QC samples analyzed from this delivery group. When appropriate to the procedure, method blank results have been reported with each analytical test. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Parameters that are included in the NELAC Fields of Testing but are not included in the lab's NELAC accreditation are identified in the discussion of each analytical procedure.

Sample Receipt

Four water samples were received for analysis at Columbia Analytical Services on 5/31/12. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at ≤6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Metals Analyses:

Method 6020: The Method Blank J1202543-MB contained low levels of Copper above the Method Reporting Limit (MRL). The samples exhibited concentrations similar to the concentrations in the method blank and should be considered as estimated concentrations.

General Chemistry Analyses:

Method 405.1 (BOD): The seed depletion for the batch that was analyzed on date did not meet the method acceptance limits. The results for all samples are estimated values. The analysis could not be repeated because holding time for the test had expired.

Method 405.1 (BOD): The sample dilution series for samples MW-LG-3 and MW-LG-7 did not meet the oxygen depletion criterion of at least 2 mg/L. The reported results are based on the highest dilution performed and are therefore the minimum values possible for this/these samples. The analysis could not be repeated because holding time for the test had expired.

Method 405.1 (BOD): Sample MW-LG-5 exhibited signs of potential toxicity for the BOD analysis, yielding successively lower results as the sample dilution decreased. The result for BOD for this sample should be considered estimated.

Subcontracted Analytical Parameters:

An aliquot of the samples were delivered to Test America in Nashville, TN on 5/31/12 for EPA Method 9020B determination. The certified analytical report has been included in its entirety in Appendix A: Subcontracted Analytical Results.

Approved by _____ Date 7/5/2012

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State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Florida Department of Health	E82502	6/30/2013
North Carolina Department of Environment and Natural Resources	527	12/31/2012
Virginia Environmental Accreditation Program	460191	12/14/2012
Louisiana Department of Environmental Quality	02086	6/30/2013
Georgia Department of Natural Resources	958	6/30/2013
Kentucky Division of Waste Management	63	7/5/2013
South Carolina Department of Health and Environmental Control	96021001	6/30/2013
Texas Commision on Environmental Quality	T104704197-09-TX	5/31/2013
Maine Department of Health and Human Services	2011006	2/3/2013
Department of Defense	66206	5/31/2013
Pennsylvania Department of Environmental Protection	68-04835	7/31/2012

Data Qualifiers

CAS Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.
N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.

Data Qualifiers

CAS Standard

S Surrogate recovery not within specified limits.
S The reported value was determined by the Method of Standard Additions (MSA).
T Analyte is a tentatively identified compound, result is estimated.
U Compound was analyzed for, but was not detected (ND).
V1 The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2 The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W Result quantified, but the corresponding peak was detected outside the generated retention time window.
W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X See case narrative.
Y Recovery outside limits
Y The chromatogram resembles a petroleum product but does not match the calibration standard.
Z The chromatogram does not resemble a petroleum product.
i The MRL/MDL has been elevated due to a matrix interference.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: EarthCon Site Services Inc
Project: IP-Roanoke Rapids/300018

Service Request: J1202543

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
J1202543-001	MW-LG-6	5/30/2012	0824
J1202543-002	MW-LG-5	5/30/2012	0953
J1202543-003	MW-LG-3	5/30/2012	1136
J1202543-004	MW-LG-7	5/30/2012	1450

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 08:24
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-6	**Basis:**	NA
Lab Code:	J1202543-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	06/04/12	6/1/12	
Barium, Total Recoverable	6020	**419**	ug/L	2.0	0.5	1	06/04/12	6/1/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/04/12	6/1/12	
Chromium, Total Recoverable	6020	**3.6**	ug/L	1.0	0.2	1	06/04/12	6/1/12	
Copper, Total Recoverable	6020	**1.0 B**	ug/L	1.0	0.8	1	06/04/12	6/1/12	
Iron, Total Recoverable	6010B	**140**	ug/L	100	3	1	06/04/12	6/1/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	06/04/12	6/1/12	
Manganese, Total Recoverable	6020	**1090**	ug/L	2.0	0.2	1	06/04/12	6/1/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	06/01/12	5/31/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/04/12	6/1/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/04/12	6/1/12	
Zinc, Total Recoverable	6020	**4.4 J**	ug/L	5.0	1.6	1	06/04/12	6/1/12	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 08:24
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-6	**Basis:**	NA
Lab Code:	J1202543-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**38.0**	mg/L	2.0	2.0	1	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**18.8**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**67**	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	**21.9**	mg/L	2.5	0.6	5	06/01/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**2940**	uMHOS/cm	1.0	1.0	1	06/04/12	NA	
Fluoride	300.0	**0.28**	mg/L	0.20	0.02	1	05/31/12	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	05/31/12	NA	
pH	9040B	**6.93 X**	pH Units	-	-	1	05/31/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**2080**	mg/L	40	40	4	06/05/12	NA	
Sulfate	300.0	**92.0**	mg/L	2.5	0.9	5	06/01/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 09:53
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-5	**Basis:**	NA
Lab Code:	J1202543-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**1.4**	ug/L	1.0	0.5	1	06/04/12	6/1/12	
Barium, Total Recoverable	6020	**128**	ug/L	2.0	0.5	1	06/04/12	6/1/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/04/12	6/1/12	
Chromium, Total Recoverable	6020	**1.6**	ug/L	1.0	0.2	1	06/04/12	6/1/12	
Copper, Total Recoverable	6020	**1.9 B**	ug/L	1.0	0.8	1	06/04/12	6/1/12	
Iron, Total Recoverable	6010B	**15200**	ug/L	100	3	1	06/04/12	6/1/12	
Lead, Total Recoverable	6020	**0.29 J**	ug/L	0.50	0.12	1	06/04/12	6/1/12	
Manganese, Total Recoverable	6020	**13700**	ug/L	200	20	100	06/06/12	6/1/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	06/01/12	5/31/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/04/12	6/1/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/04/12	6/1/12	
Zinc, Total Recoverable	6020	**11.2**	ug/L	5.0	1.6	1	06/04/12	6/1/12	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 09:53
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-5	**Basis:**	NA
Lab Code:	J1202543-002		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**26.1 E**	mg/L	2.0	2.0	1	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**5.9**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**35**	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	**2.99**	mg/L	0.50	0.11	1	05/31/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**839**	uMHOS/cm	1.0	1.0	1	06/04/12	NA	
Fluoride	300.0	**0.19 J**	mg/L	0.20	0.02	1	05/31/12	NA	
Nitrate as Nitrogen	300.0	**0.16 J**	mg/L	0.20	0.03	1	05/31/12	NA	
pH	9040B	**6.20 X**	pH Units	-	-	1	05/31/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**634**	mg/L	10	10	1	06/05/12	NA	
Sulfate	300.0	**229**	mg/L	2.5	0.9	5	06/01/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 11:36
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-3	**Basis:**	NA
Lab Code:	J1202543-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	06/04/12	6/1/12	
Barium, Total Recoverable	6020	**45.3**	ug/L	2.0	0.5	1	06/04/12	6/1/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/04/12	6/1/12	
Chromium, Total Recoverable	6020	**0.5 J**	ug/L	1.0	0.2	1	06/04/12	6/1/12	
Copper, Total Recoverable	6020	**1.1 B**	ug/L	1.0	0.8	1	06/04/12	6/1/12	
Iron, Total Recoverable	6010B	**30 J**	ug/L	100	3	1	06/04/12	6/1/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	06/04/12	6/1/12	
Manganese, Total Recoverable	6020	**573**	ug/L	2.0	0.2	1	06/06/12	6/1/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	06/01/12	5/31/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/04/12	6/1/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/04/12	6/1/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	06/04/12	6/1/12	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 11:36
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-3	**Basis:**	NA
Lab Code:	J1202543-003		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	4.0 U	mg/L	4.0	4.0	2	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**6.3**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**23**	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	**56.6**	mg/L	0.50	0.11	1	05/31/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**1750**	uMHOS/cm	1.0	1.0	1	06/04/12	NA	
Fluoride	300.0	**0.30**	mg/L	0.20	0.02	1	05/31/12	NA	
Nitrate as Nitrogen	300.0	**10.1**	mg/L	0.20	0.03	1	05/31/12	NA	
pH	9040B	**6.78 X**	pH Units	-	-	1	05/31/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**1210**	mg/L	20	20	2	06/05/12	NA	
Sulfate	300.0	**295**	mg/L	2.5	0.9	5	06/01/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 14:50
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-7	**Basis:**	NA
Lab Code:	J1202543-004		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	06/04/12	6/1/12	
Barium, Total Recoverable	6020	**118**	ug/L	2.0	0.5	1	06/04/12	6/1/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/04/12	6/1/12	
Chromium, Total Recoverable	6020	**0.8 J**	ug/L	1.0	0.2	1	06/04/12	6/1/12	
Copper, Total Recoverable	6020	**1.0 BJ**	ug/L	1.0	0.3	1	06/04/12	6/1/12	
Iron, Total Recoverable	6010B	**170**	ug/L	100	3	1	06/04/12	6/1/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	06/04/12	6/1/12	
Manganese, Total Recoverable	6020	**265**	ug/L	2.0	0.2	1	06/04/12	6/1/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	06/01/12	5/31/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/04/12	6/1/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/04/12	6/1/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	06/04/12	6/1/12	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 14:50
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-7	**Basis:**	NA
Lab Code:	J1202543-004		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	4.0 U	mg/L	4.0	4.0	2	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**4.8**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**20**	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	**17.1**	mg/L	0.50	0.11	1	05/31/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**2190**	uMHOS/cm	1.0	1.0	1	06/05/12	NA	
Fluoride	300.0	**0.24**	mg/L	0.20	0.02	1	05/31/12	NA	
Nitrate as Nitrogen	300.0	**0.26**	mg/L	0.20	0.03	1	05/31/12	NA	
pH	9040B	**7.08 X**	pH Units	-	-	1	05/31/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**1480**	mg/L	40	40	4	06/05/12	NA	
Sulfate	300.0	**66.2**	mg/L	0.50	0.18	1	05/31/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1202543-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	06/04/12	6/1/12	
Barium, Total Recoverable	6020	0.5 U	ug/L	2.0	0.5	1	06/04/12	6/1/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/04/12	6/1/12	
Chromium, Total Recoverable	6020	0.2 U	ug/L	1.0	0.2	1	06/04/12	6/1/12	
Copper, Total Recoverable	6020	1.4	ug/L	1.0	0.3	1	06/06/12	6/1/12	
Iron, Total Recoverable	6010B	3 U	ug/L	100	3	1	06/04/12	6/1/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	06/04/12	6/1/12	
Manganese, Total Recoverable	6020	0.2 U	ug/L	2.0	0.2	1	06/04/12	6/1/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	06/01/12	5/31/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/04/12	6/1/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/04/12	6/1/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	06/04/12	6/1/12	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1202543-MB1		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	2.0 U	mg/L	2.0	2.0	1	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**0.10 J**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	16 U	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	0.11 U	mg/L	0.50	0.11	1	05/31/12	NA	
Conductivity at 25 Degrees Celsius	120.1	1.0 U	uMHOS/cm	1.0	1.0	1	06/04/12	NA	
Fluoride	300.0	0.02 U	mg/L	0.20	0.02	1	05/31/12	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	05/31/12	NA	
Solids, Total Dissolved (TDS)	160.1	10 U	mg/L	10	10	1	06/05/12	NA	
Sulfate	300.0	0.18 U	mg/L	0.50	0.18	1	05/31/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1202543-MB2		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chloride	300.0	0.11 U	mg/L	0.50	0.11	1	06/01/12 14:15	
Sulfate	300.0	0.18 U	mg/L	0.50	0.18	1	06/01/12 14:15	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12
Sample Matrix:	Water	**Date Received:**	05/31/12
		Date Analyzed:	06/4/12
		Date Extracted:	06/1/12

Duplicate Matrix Spike Summary
Inorganic Parameters

Sample Name:	MW-LG-5	**Units:**	ug/L
Lab Code:	J1202543-002	**Basis:**	NA
Analysis Method:	6010B		
Prep Method:	EPA 3005A		

		Matrix Spike J1202543-002MS2			Duplicate Matrix Spike J1202543-002DMS2					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Iron, Total Recoverable	15200	20200	5000	101	20200	5000	100	75-125	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

QA/QC Report

Client: EarthCon Site Services Inc
Project: IP-Roanoke Rapids/300018
Sample Matrix: Water

Service Request: J1202543
Date Collected: 05/30/12
Date Received: 05/31/12
Date Analyzed: 6/4/12

Duplicate Matrix Spike Summary
Inorganic Parameters

Sample Name: MW-LG-6
Lab Code: J1202543-001

Units: ug/L
Basis: NA

			Matrix Spike J1202543-001MS1			Duplicate Matrix Spike J1202543-001DMS1					
Analyte Name	**Method**	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Arsenic, Total Recoverable	6020	0.5	49.8	50.0	100	51.2	50.0	102	75-125	3	20
Barium, Total Recoverable	6020	419	478	50.0	117 #	480	50.0	121 #	75-125	<1	20
Cadmium, Total Recoverable	6020	0.10	45.2	50.0	90	45.5	50.0	91	75-125	<1	20
Chromium, Total Recoverable	6020	3.6	52.3	50.0	97	51.7	50.0	96	75-125	1	20
Copper, Total Recoverable	6020	1.0	47.2	50.0	92	44.7	50.0	87	75-125	5	20
Lead, Total Recoverable	6020	0.12	45.7	50.0	91	46.2	50.0	92	75-125	<1	20
Manganese, Total Recoverable	6020	1090	1160	50.0	148 #	1150	50.0	136 #	75-125	<1	20
Selenium, Total Recoverable	6020	1.1	45.2	50.0	90	46.3	50.0	93	75-125	2	20
Silver, Total Recoverable	6020	0.06	44.0	50.0	88	44.3	50.0	89	75-125	<1	20
Zinc, Total Recoverable	6020	4.4	90.3	100	86	90.5	100	86	75-125	<1	20

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COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12
Sample Matrix:	Water	**Date Received:**	05/31/12
		Date Analyzed:	06/1/12
		Date Extracted:	05/31/12

Duplicate Matrix Spike Summary
Inorganic Parameters

Sample Name:	MW-LG-7	**Units:**	ug/L
Lab Code:	J1202543-004	**Basis:**	NA
Analysis Method:	7470A		
Prep Method:	Method		

		Matrix Spike J1202543-004MS3			Duplicate Matrix Spike J1202543-004DMS3					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Mercury, Total	ND	0.95	1.25	76	0.96	1.25	77	75-125	1	20

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COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: EarthCon Site Services Inc
Project: IP-Roanoke Rapids/300018
Sample Matrix: Water

Service Request: J1202543
Date Analyzed: 06/01/12 - 06/04/12

Lab Control Sample Summary
Inorganic Parameters

Units: ug/L
Basis: NA

Lab Control Sample
J1202543-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Total Recoverable	6020	51.0	50.0	102	80-120
Barium, Total Recoverable	6020	49.9	50.0	100	80-120
Cadmium, Total Recoverable	6020	50.7	50.0	101	80-120
Chromium, Total Recoverable	6020	51.9	50.0	104	80-120
Copper, Total Recoverable	6020	51.5	50.0	103	80-120
Iron, Total Recoverable	6010B	5100	5000	102	80-120
Lead, Total Recoverable	6020	51.2	50.0	102	80-120
Manganese, Total Recoverable	6020	51.4	50.0	103	80-120
Mercury, Total	7470A	1.19	1.25	95	80-120
Selenium, Total Recoverable	6020	50.0	50.0	100	80-120
Silver, Total Recoverable	6020	51.1	50.0	102	80-120
Zinc, Total Recoverable	6020	102	100	102	80-120

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12
Sample Matrix:	Water	**Date Received:**	05/31/12
		Date Analyzed:	06/04/12

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	MW-LG-3	**Units:**	uMHOS/cm
Lab Code:	J1202543-003	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1202543-003DUP2 Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	120.1	1.0	1.0	1750	1750	1750	<1	20

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COLUMBIA ANALYTICAL SERVICES, INC.

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QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12
Sample Matrix:	Water	**Date Received:**	05/31/12
		Date Analyzed:	05/31/12 - 06/01/12

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	MW-LG-6	**Units:**	mg/L
Lab Code:	J1202543-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1202543-001DUP1 Result	Average	RPD	RPD Limit
Chloride	300.0	2.5	0.6	21.9	21.8	21.9	<1	20
Fluoride	300.0	0.20	0.02	0.28	0.29	0.283	1	20
Nitrate as Nitrogen	300.0	0.20	0.03	0.03	0.03	NC	NC	20
Sulfate	300.0	2.5	0.9	92.0	92.0	92.0	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

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COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12
Sample Matrix:	Water	**Date Received:**	05/31/12
		Date Analyzed:	05/31/12

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	MW-LG-6	**Units:**	pH Units
Lab Code:	J1202543-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1202543-001DUP1 Result	Average	RPD	RPD Limit
pH	9040B	-	-	6.93	6.92	6.93	<1	20

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COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12
Sample Matrix:	Water	**Date Received:**	05/31/12
		Date Analyzed:	05/31/12 - 06/01/12

Matrix Spike Summary
Chloride

Sample Name:	MW-LG-6	**Units:**	mg/L
Lab Code:	J1202543-001	**Basis:**	NA

Matrix Spike
J1202543-001MS

Analyte Name	Method	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Chloride	300.0	21.9	262	250	96	90-110
Fluoride	300.0	0.28	4.87	5.00	92	90-110
Nitrate as Nitrogen	300.0	0.03	5.05	5.00	101	90-110
Sulfate	300.0	92.0	342	250	100	90-110

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COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

QA/QC Report

Client: EarthCon Site Services Inc
Project: IP-Roanoke Rapids/300018
Sample Matrix: Water

Service Request: J1202543
Date Analyzed: 05/31/12 - 06/07/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Lab Control Sample
J1202543-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Biochemical Oxygen Demand (BOD)	405.1	198	198	100	84.6-115.4
Carbon, Total Organic (TOC)	415.1	47.2	50.0	94	90-110
Chemical Oxygen Demand, Total	SM21 5220 D	516	500	103	95-105
Chloride	300.0	47.9	50.0	96	90-110
Fluoride	300.0	4.90	5.00	98	90-110
Nitrate as Nitrogen	300.0	4.64	5.00	93	90-110
Solids, Total Dissolved (TDS)	160.1	298	300	99	85-115
Sulfate	300.0	49.1	50.0	98	90-110

Client: EarthCon Site Services Inc
Project: IP-Roanoke Rapids/300018
Sample Matrix: Water

Service Request: J1202543
Date Analyzed: 6/4/12

Lab Control Sample Summary
General Chemistry Parameters

Units: uMHOS/cm
Basis: NA

Lab Control Sample
J1202543-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Conductivity at 25 Degrees Celsius	120.1	992	1000	99	90-110

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

QA/QC Report

Client: EarthCon Site Services Inc
Project: IP-Roanoke Rapids/300018
Sample Matrix: Water

Service Request: J1202543
Date Analyzed: 6/1/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Lab Control Sample
J1202543-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chloride	300.0	48.8	50.0	98	90-110
Sulfate	300.0	50.1	50.0	100	90-110

ALS Environmental

Cooler Receipt Form

Client: Earth Con

Service Request #: J1202543

Project: EP- Roanoke Rapids

Cooler received on 5-31-12 and opened on 5-31-12 by SC

COURIER: ALS UPS FEDEX Client Other _____ Airbill # 8987 3827 6736

1	Were custody seals on outside of cooler?	Yes	No		
	If yes, how many and where?	#: 1	on lid	other	
2	Were seals intact and signature and date correct?	Yes	No	N/A	
3	Were custody papers properly filled out?	Yes	No	N/A	
4	Temperature of cooler(s) upon receipt (Should be > 0°C and < 6°C) 3.7				
5	Thermometer ID T71				
6	Temperature Blank Present?	Yes	No		
7	Were Ice or Ice Packs present	Ice	Ice Packs	No	
8	Did all bottles arrive in good condition (unbroken, etc....)?	Yes	No	N/A	
9	Type of packing material present	Netting	Vial Holder	Bubble Wrap	
		Paper	Styrofoam	Other	N/A
10	Were all bottle labels complete (sample ID, preservation, etc....)?	Yes	No	N/A	
11	Did all bottle labels and tags agree with custody papers?	Yes	No	N/A	
12	Were the correct bottles used for the tests indicated?	Yes	No	N/A	
13	Were all of the preserved bottles received with the appropriate preservative?	Yes	No	N/A	
	HNO3 pH<2 H2SO4 pH<2 ZnAc2/NaOH pH>9 NaOH pH>12 HCl pH<2				
	Preservative additions noted below				
14	Were all samples received within analysis holding times?	Yes	No	N/A	
15	Were all VOA vials free of air bubbles? If present, note below	Yes	No	N/A	
16	Where did the bottles originate?	ALS	Client		

Sample ID	Reagent	Lot #	ml added	Initials Date/Time
MW-LG-6	HNO3	met-13-41F	2.0	SC 5-31-12 1120
MW-LG-3	↓	↓	1.0	↓
MW-LG-7	↓	↓	1.0	↓

Additional comments and/or explanation of all discrepancies noted above:

Client approval to run samples if discrepancies noted: Date:

Columbia Analytical Services

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

9143 Philips Highway, Ste 200 • Jacksonville, FL 32256 (904) 739-2277 • 800-695-7222 x06 • FAX (904) 739-2011 PAGE _____ OF _____

www.caslab.com

SR # J1202543

CAS Contact

J1202543 5

EarthCon Site Services Inc
IP-Roanoke Rapids

Project Name: IP- Roanoke Rapids	Project Number: 300018
Project Manager: Pete Ramsey	Email Address:
Company/Address: EArthcon	
Phone #: 901-850-5404	FAX#:
Sampler's Signature: [signature]	Sampler's Printed Name: Jim McCormick

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: M O N M –

NUMBER OF CONTAINERS

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	TOX	Cond, Cl, F, SO4, NO3, TOS, BOD, PH	Metals	COD	TOC	REMARKS/ ALTERNATE DESCRIPTION
MW-LG-6		5-30-12	824	GW	6	X	X	X	X	X	
MW-LG-5			953								
MW-LG-3			1136								
MW-LG-7			1450								

2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS

See QAPP ☐

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ STANDARD
REQUESTED FAX DATE _____
REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Specialized Forms / Custom Report
Edata ____ Yes ____ No

INVOICE INFORMATION
PO#
BILL TO:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: [signature]	Signature: [signature]	Signature	Signature	Signature	Signature
Printed Name: Jim McCormick	Printed Name: Shawn Lightsey	Printed Name	Printed Name	Printed Name	Printed Name
Firm: EArthcon	Firm: ACS	Firm	Firm	Firm	Firm
Date/Time: 5-30-12 500pm	Date/Time: 5-31-12 0915	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Retained by Client

JSCOC-3/11

Columbia Analytical Services
9143 Philips Highway, Suite 200
Jacksonville, FL 32256
Tel 904-739-2277
Fax 904-739-2011

Appendix A

Subcontracted Analytical Results

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Road
Nashville, TN 37204
Tel: 800-765-0980

TestAmerica Job ID: NWF0129
Client Project/Site: J1202543
Client Project Description: Columbia Analytical Services

For:
Columbia Analytical Services (9477)
9143 Philips Highway, Suite 200
Jacksonville, FL 32256

Attn: Craig Myers

Madonna Myers

Authorized for release by:
7/3/2012 4:07:26 PM

Madonna Myers
Project Manager
madonna.myers@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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

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

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Sample Summary

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
NWF0129-01	MW-LG-5	Water	05/30/12 09:53	06/01/12 10:10
NWF0129-02	MW-LG-7	Water	05/30/12 14:50	06/01/12 10:10
NWF0129-04	MW-LG-3 (Received 6/7/12 @10:00)	Water	05/30/12 11:36	06/01/12 10:10
NWF0129-05	MW-LG-6	Water	05/30/12 11:36	06/01/12 10:10

Definitions/Glossary

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Qualifiers

WetChem

Qualifier	Qualifier Description
M8	The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).
P13	Sample volume, as received, was inappropriate to meet method specifications.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Client Sample ID: MW-LG-5
Date Collected: 05/30/12 09:53
Date Received: 06/01/12 10:10

Lab Sample ID: NWF0129-01
Matrix: Water

Method: SW846 9020B - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Halides	ND		0.0300		mg/L		06/26/12 07:30	06/26/12 07:30	1.00

5

Client Sample Results

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Client Sample ID: MW-LG-7
Date Collected: 05/30/12 14:50
Date Received: 06/01/12 10:10

Lab Sample ID: NWF0129-02
Matrix: Water

Method: SW846 9020B - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Halides	ND		0.0300		mg/L		06/26/12 07:30	06/26/12 07:30	1.00

5

Client Sample Results

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Client Sample ID: MW-LG-3 (Received 6/7/12 @10:00)
Date Collected: 05/30/12 11:36
Date Received: 06/01/12 10:10

Lab Sample ID: NWF0129-04
Matrix: Water

Method: SW846 9020B - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Halides	0.0557	P13	0.0300		mg/L		06/26/12 07:30	06/26/12 07:30	1.00

5

Client Sample Results

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Client Sample ID: MW-LG-6
Date Collected: 05/30/12 11:36
Date Received: 06/01/12 10:10

Lab Sample ID: NWF0129-05
Matrix: Water

5

Method: SW846 9020B - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Halides	ND	P13	0.0330		mg/L		06/26/12 07:30	06/26/12 07:30	1.00

QC Sample Results

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Method: SW846 9020B - General Chemistry Parameters

Lab Sample ID: 12F3571-BLK1
Matrix: Water
Analysis Batch: 12F3571

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12F3571_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Halides	ND		0.0300		mg/L		06/26/12 07:30	06/26/12 07:30	1.00

Lab Sample ID: 12F3571-BS1
Matrix: Water
Analysis Batch: 12F3571

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 12F3571_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Halides	0.250	0.247		mg/L		99	90 - 120

Lab Sample ID: 12F3571-BSD1
Matrix: Water
Analysis Batch: 12F3571

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 12F3571_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Halides	0.250	0.245		mg/L		98	90 - 120	0.9	20

Lab Sample ID: 12F3571-MS1
Matrix: Water
Analysis Batch: 12F3571

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 12F3571_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Halides	ND		0.100	0.0601	M8	mg/L		60	70 - 130

Lab Sample ID: 12F3571-MS2
Matrix: Water
Analysis Batch: 12F3571

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 12F3571_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Halides	ND		0.100	0.0698		mg/L		70	70 - 130

QC Association Summary

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

WetChem

Analysis Batch: 12F3571

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12F3571-BLK1	Method Blank	Total	Water	SW846 9020B	12F3571_P
12F3571-BS1	Lab Control Sample	Total	Water	SW846 9020B	12F3571_P
12F3571-BSD1	Lab Control Sample Dup	Total	Water	SW846 9020B	12F3571_P
12F3571-MS1	Matrix Spike	Total	Water	SW846 9020B	12F3571_P
12F3571-MS2	Matrix Spike	Total	Water	SW846 9020B	12F3571_P
NWF0129-01	MW-LG-5	Total	Water	SW846 9020B	12F3571_P
NWF0129-02	MW-LG-7	Total	Water	SW846 9020B	12F3571_P
NWF0129-04	MW-LG-3 (Received 6/7/12 @10:00)	Total	Water	SW846 9020B	12F3571_P
NWF0129-05	MW-LG-6	Total	Water	SW846 9020B	12F3571_P

Prep Batch: 12F3571_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12F3571-BLK1	Method Blank	Total	Water	NO PREP	
12F3571-BS1	Lab Control Sample	Total	Water	NO PREP	
12F3571-BSD1	Lab Control Sample Dup	Total	Water	NO PREP	
12F3571-MS1	Matrix Spike	Total	Water	NO PREP	
12F3571-MS2	Matrix Spike	Total	Water	NO PREP	
NWF0129-01	MW-LG-5	Total	Water	NO PREP	
NWF0129-02	MW-LG-7	Total	Water	NO PREP	
NWF0129-04	MW-LG-3 (Received 6/7/12 @10:00)	Total	Water	NO PREP	
NWF0129-05	MW-LG-6	Total	Water	NO PREP	

Lab Chronicle

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Client Sample ID: MW-LG-5 — Lab Sample ID: NWF0129-01

Date Collected: 05/30/12 09:53
Date Received: 06/01/12 10:10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Analysis	SW846 9020B		1.00	12F3571	06/26/12 07:30	SHJ	TAL NSH
Total	Prep	NO PREP		1.00	12F3571_P	06/26/12 07:30	SHJ	TAL NSH

Client Sample ID: MW-LG-7 — Lab Sample ID: NWF0129-02

Date Collected: 05/30/12 14:50
Date Received: 06/01/12 10:10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Analysis	SW846 9020B		1.00	12F3571	06/26/12 07:30	SHJ	TAL NSH
Total	Prep	NO PREP		1.00	12F3571_P	06/26/12 07:30	SHJ	TAL NSH

Client Sample ID: MW-LG-3 (Received 6/7/12 @10:00) — Lab Sample ID: NWF0129-04

Date Collected: 05/30/12 11:36
Date Received: 06/01/12 10:10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Analysis	SW846 9020B		1.00	12F3571	06/26/12 07:30	SHJ	TAL NSH
Total	Prep	NO PREP		1.00	12F3571_P	06/26/12 07:30	SHJ	TAL NSH

Client Sample ID: MW-LG-6 — Lab Sample ID: NWF0129-05

Date Collected: 05/30/12 11:36
Date Received: 06/01/12 10:10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Analysis	SW846 9020B		1.00	12F3571	06/26/12 07:30	SHJ	TAL NSH
Total	Prep	NO PREP		1.10	12F3571_P	06/26/12 07:30	SHJ	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

Method Summary

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Method	Method Description	Protocol	Laboratory
SW846 9020B	General Chemistry Parameters		TAL NSH

Protocol References:

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

Certification Summary

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Nashville		ACIL		393
TestAmerica Nashville	A2LA	ISO/IEC 17025		0453.07
TestAmerica Nashville	Alabama	State Program	4	41150
TestAmerica Nashville	Alaska (UST)	State Program	10	UST-087
TestAmerica Nashville	Arizona	State Program	9	AZ0473
TestAmerica Nashville	Arkansas DEQ	State Program	6	88-0737
TestAmerica Nashville	California	NELAC	9	1168CA
TestAmerica Nashville	Canadian Assoc Lab Accred (CALA)	Canada		3744
TestAmerica Nashville	Colorado	State Program	8	N/A
TestAmerica Nashville	Connecticut	State Program	1	PH-0220
TestAmerica Nashville	Illinois	NELAC	5	200010
TestAmerica Nashville	Iowa	State Program	7	131
TestAmerica Nashville	Kansas	NELAC	7	E-10229
TestAmerica Nashville	Kentucky	State Program	4	90038
TestAmerica Nashville	Kentucky (UST)	State Program	4	19
TestAmerica Nashville	Louisiana	NELAC	6	30613
TestAmerica Nashville	Louisiana	NELAC	6	LA110014
TestAmerica Nashville	Maryland	State Program	3	316
TestAmerica Nashville	Massachusetts	State Program	1	M-TN032
TestAmerica Nashville	Minnesota	NELAC	5	047-999-345
TestAmerica Nashville	Mississippi	State Program	4	N/A
TestAmerica Nashville	Montana (UST)	State Program	8	NA
TestAmerica Nashville	New Hampshire	NELAC	1	2963
TestAmerica Nashville	New Jersey	NELAC	2	TN965
TestAmerica Nashville	New York	NELAC	2	11342
TestAmerica Nashville	North Carolina DENR	State Program	4	387
TestAmerica Nashville	North Dakota	State Program	8	R-146
TestAmerica Nashville	Ohio VAP	State Program	5	CL0033
TestAmerica Nashville	Oklahoma	State Program	6	9412
TestAmerica Nashville	Oregon	NELAC	10	TN200001
TestAmerica Nashville	Pennsylvania	NELAC	3	68-00585
TestAmerica Nashville	Rhode Island	State Program	1	LAO00268
TestAmerica Nashville	South Carolina	State Program	4	84009
TestAmerica Nashville	South Carolina	State Program	4	84009
TestAmerica Nashville	Tennessee	State Program	4	2008
TestAmerica Nashville	Texas	NELAC	6	T104704077-09-TX
TestAmerica Nashville	USDA	Federal		S-48469
TestAmerica Nashville	Utah	NELAC	8	TAN
TestAmerica Nashville	Virginia	NELAC	3	460152
TestAmerica Nashville	Washington	State Program	10	C789
TestAmerica Nashville	West Virginia DEP	State Program	3	219
TestAmerica Nashville	Wisconsin	State Program	5	998020430
TestAmerica Nashville	Wyoming (UST)	A2LA	8	453.07

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT

NWF0129

Cooler Received/Opened On 6-12-12 @ 1010

1. Tracking # 1ZX5W0480142381105 (last 4 digits, FedEx)

Courier: UPS IR Gun ID 94660220

2. Temperature of rep. sample or temp blank when opened: 0.9 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: (1) Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (Intial) _____

7. Were custody seals on containers: YES NO and intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry Ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA No sample date or time.

12. Did all container labels and tags agree with custody papers? YES...NO...NA Two samples marked LG-5

13a. Were VOA vials received? YES...NO...NA one BIS

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # NA

I certify that I unloaded the cooler and answered questions 7-14 (Intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA >4

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (Intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (Intial) _____

I certify that I attached a label with the unique LIMS number to each container (Intial) _____

21. Were there Non-Conformance Issues at login? YES...NO Was a PIPE generated? YES...NO...# 63530

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 6/24/09
7/3/2012

Columbia Analytical Services, Inc. Chain of Custody

9143 Philips Highway • Jacksonville, FL 32256 • 904-739-2277 • FAX 904-739-2011

CAS Contact: Jerry Allen

7/3/2012

Project Number: J1202543
Project Manager: Jerry Allen

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID TA	TOX 9020B
J1202543-001	MW-LG-6	1	Water	5/30/12	0824	~~Middletown~~	X
J1202543-002	MW-LG-5		Water	5/30/12	0953	Middletown	
J1202543-003	MW-LG-3		Water	5/30/12	1136	Middletown	
J1202543-004	MW-LG-7		Water	5/30/12	1450	Middletown	

8

NWF0129
06/15/12 23:59

Test Comments
TOX - 9020B J1202543-001,2,3,4 Send to Test America Nashville TN

Special Instructions/Comments	Turnaround Requirements	Report Requirements	Invoice Information
PLEASE SEND RESULTS TO MANDY SULLIVAN	____RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 ✓ STANDARD Requested FAX Date: ____ Requested Report Date: 06/14/12	____I. Results Only ✓ II. Results + QC Summaries ____III. Results + QC and Calibration Summaries ____IV. Data Validation Report with Raw Data PQL/MDL/J Y EDD Y	PO# J1202543 Bill to

Relinquished By: [signature] 5.31.12 Received By: [signature] TAN Temp 0.9 6-1-12 10:10 Airbill Number: ____

July 06, 2012

Service Request No: J1202569

Mr. Peter Ramsey
EarthCon Site Services Inc
1880 West Oak Parkway
Building 100, Suite 106
Marietta, GA 30062

Laboratory Results for: IP-Roanoke Rapids

Dear Mr.Ramsey,

Enclosed are the results of the sample(s) submitted to our laboratory June 01, 2012
For your reference, these analyses have been assigned our service request number **J1202569.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. If required, the laboratory can provide uncertainty measurements for each method employed in sample analysis; this uncertainty measurement would be generated using method validation studies and the laboratory's quality control data.

Please contact me if you have any questions. My extension is 4410. You may also contact me via email at JAllen@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Enviromental

Jerry Allen
Project Manager

Columbia Analytical Services™

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Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company

Environmental www.caslab.com ▪ www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

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Now part of the ALS Group
9143 Philips Highway, Jacksonville, FL 32256 | 904-739-2277 | www.caslab.com

Client: EarthCon Site Services Inc
Project: IP-Roanoke Rapids/300018
Sample Matrix: Water

Service Request: J1202569
Date Received: 6/1/12

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables, including results of QC samples analyzed from this delivery group. When appropriate to the procedure, method blank results have been reported with each analytical test. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Parameters that are included in the NELAC Fields of Testing but are not included in the lab's NELAC accreditation are identified in the discussion of each analytical procedure.

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 6/1/12. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at ≤6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Metals Analyses:

No significant data anomalies were noted with this analysis.

General Chemistry Analyses:

Method 405.1 (BOD): The seed depletion for the batch that was analyzed on date did not meet the method acceptance limits. The results for samples MW-LG-1 and MW-LG-DupA are estimated values. The analysis could not be repeated because holding time for the test had expired.

Method 405.1 (BOD): All of the samples for this project exhibited signs of potential toxicity for the BOD analysis, yielding successively lower results as the sample dilution decreased. The results for BOD for these samples should be considered estimated.

Subcontracted Analytical Parameters:

An aliquot of the samples were delivered to Test America in Nashville, TN on 6/6/12 for EPA Method 9020B determination. The certified analytical report has been included in its entirety in Appendix A: Subcontracted Analytical Results.

Approved by _____ Date 7/6/2012

Columbia Analytical Services
Now part of the ALS Group
9143 Philips Highway, Jacksonville, FL 32256 | 904-739-2277 | www.caslab.com

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Florida Department of Health	E82502	6/30/2013
North Carolina Department of Environment and Natural Resources	527	12/31/2012
Virginia Environmental Accreditation Program	460191	12/14/2012
Louisiana Department of Environmental Quality	02086	6/30/2013
Georgia Department of Natural Resources	958	6/30/2013
Kentucky Division of Waste Management	63	7/5/2013
South Carolina Department of Health and Environmental Control	96021001	6/30/2013
Texas Commision on Environmental Quality	T104704197-09-TX	5/31/2013
Maine Department of Health and Human Services	2011006	2/3/2013
Department of Defense	66206	5/31/2013
Pennsylvania Department of Environmental Protection	68-04835	7/31/2012

Data Qualifiers

CAS Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.
N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.

Data Qualifiers

CAS Standard

S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: EarthCon Site Services Inc
Project: IP-Roanoke Rapids/300018

Service Request: J1202569

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
J1202569-001	MW-LG-1	5/31/2012	1315
J1202569-002	MW-LG-DupA	5/31/2012	0000

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/31/12 13:15
Sample Matrix:	Water	**Date Received:**	06/01/12 09:32
Sample Name:	MW-LG-1	**Basis:**	NA
Lab Code:	J1202569-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**0.5 J**	ug/L	1.0	0.5	1	06/07/12	6/6/12	
Barium, Total Recoverable	6020	**100**	ug/L	2.0	0.5	1	06/07/12	6/6/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/07/12	6/6/12	
Chromium, Total Recoverable	6020	**1.8**	ug/L	1.0	0.2	1	06/07/12	6/6/12	
Copper, Total Recoverable	6020	**3.8**	ug/L	1.0	0.3	1	06/07/12	6/6/12	
Iron, Total Recoverable	6010B	**5390**	ug/L	100	3	1	06/05/12	6/4/12	
Lead, Total Recoverable	6020	**1.62**	ug/L	0.50	0.12	1	06/07/12	6/6/12	
Manganese, Total Recoverable	6020	**432**	ug/L	2.0	0.2	1	06/07/12	6/6/12	
Mercury, Total	7470A	**0.03 J**	ug/L	0.10	0.02	1	06/05/12	6/4/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/07/12	6/6/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/07/12	6/6/12	
Zinc, Total Recoverable	6020	**2.7 J**	ug/L	5.0	1.6	1	06/07/12	6/6/12	

COLUMBIA ANALYTICAL SERVICES, INC.
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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/31/12 13:15
Sample Matrix:	Water	**Date Received:**	06/01/12 09:32
Sample Name:	MW-LG-1	**Basis:**	NA
Lab Code:	J1202569-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**18.6 E**	mg/L	2.0	2.0	1	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**5.1**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**35**	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	**3.27**	mg/L	0.50	0.11	1	06/01/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**218**	uMHOS/cm	1.0	1.0	1	06/05/12	NA	
Fluoride	300.0	**0.16 J**	mg/L	0.20	0.02	1	06/01/12	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	06/01/12	NA	
pH	9040B	**6.34 X**	pH Units	-	-	1	06/01/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**169**	mg/L	10	10	1	06/05/12	NA	
Sulfate	300.0	**10.5**	mg/L	0.50	0.18	1	06/01/12	NA	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/31/12 00:00
Sample Matrix:	Water	**Date Received:**	06/01/12 09:32
Sample Name:	MW-LG-DupA	**Basis:**	NA
Lab Code:	J1202569-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**0.8 J**	ug/L	1.0	0.5	1	06/07/12	6/6/12	
Barium, Total Recoverable	6020	**108**	ug/L	2.0	0.5	1	06/07/12	6/6/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/07/12	6/6/12	
Chromium, Total Recoverable	6020	**1.4**	ug/L	1.0	0.2	1	06/07/12	6/6/12	
Copper, Total Recoverable	6020	**3.4**	ug/L	1.0	0.3	1	06/07/12	6/6/12	
Iron, Total Recoverable	6010B	**5900**	ug/L	100	3	1	06/05/12	6/4/12	
Lead, Total Recoverable	6020	**1.48**	ug/L	0.50	0.12	1	06/07/12	6/6/12	
Manganese, Total Recoverable	6020	**468**	ug/L	2.0	0.2	1	06/07/12	6/6/12	
Mercury, Total	7470A	**0.03 J**	ug/L	0.10	0.02	1	06/05/12	6/4/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/07/12	6/6/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/07/12	6/6/12	
Zinc, Total Recoverable	6020	**2.8 J**	ug/L	5.0	1.6	1	06/07/12	6/6/12	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/31/12 00:00
Sample Matrix:	Water	**Date Received:**	06/01/12 09:32
Sample Name:	MW-LG-DupA	**Basis:**	NA
Lab Code:	J1202569-002		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**21.9 E**	mg/L	2.0	2.0	1	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**5.0**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**26**	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	**3.66**	mg/L	0.50	0.11	1	06/01/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**240**	uMHOS/cm	1.0	1.0	1	06/05/12	NA	
Fluoride	300.0	**0.16 J**	mg/L	0.20	0.02	1	06/01/12	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	06/01/12	NA	
pH	9040B	**6.33 X**	pH Units	-	-	1	06/01/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**178**	mg/L	10	10	1	06/05/12	NA	
Sulfate	300.0	**9.34**	mg/L	0.50	0.18	1	06/01/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1202569-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	06/07/12	6/6/12	
Barium, Total Recoverable	6020	0.5 U	ug/L	2.0	0.5	1	06/07/12	6/6/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/07/12	6/6/12	
Chromium, Total Recoverable	6020	0.2 U	ug/L	1.0	0.2	1	06/07/12	6/6/12	
Copper, Total Recoverable	6020	0.3 U	ug/L	1.0	0.3	1	06/07/12	6/6/12	
Iron, Total Recoverable	6010B	3 U	ug/L	100	3	1	06/04/12	6/4/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	06/07/12	6/6/12	
Manganese, Total Recoverable	6020	0.2 U	ug/L	2.0	0.2	1	06/07/12	6/6/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	06/05/12	6/4/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/07/12	6/6/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/07/12	6/6/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	06/07/12	6/6/12	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1202569-MB		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	2.0 U	mg/L	2.0	2.0	1	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**0.10 J**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	16 U	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	0.11 U	mg/L	0.50	0.11	1	06/01/12	NA	
Conductivity at 25 Degrees Celsius	120.1	1.0 U	uMHOS/cm	1.0	1.0	1	06/04/12	NA	
Fluoride	300.0	0.02 U	mg/L	0.20	0.02	1	06/01/12	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	06/01/12	NA	
Solids, Total Dissolved (TDS)	160.1	10 U	mg/L	10	10	1	06/05/12	NA	
Sulfate	300.0	0.18 U	mg/L	0.50	0.18	1	06/01/12	NA	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/31/12
Sample Matrix:	Water	**Date Received:**	06/01/12
		Date Analyzed:	06/5/12
		Date Extracted:	06/4/12

Duplicate Matrix Spike Summary
Inorganic Parameters

Sample Name:	MW-LG-1	**Units:**	ug/L
Lab Code:	J1202569-001	**Basis:**	NA
Analysis Method:	7470A		
Prep Method:	Method		

		Matrix Spike J1202569-001MS			Duplicate Matrix Spike J1202569-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Mercury, Total	0.03	1.3	1.25	103	1.3	1.25	99	75-125	4	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: EarthCon Site Services Inc
Project: IP-Roanoke Rapids/300018
Sample Matrix: Water

Service Request: J1202569
Date Analyzed: 06/05/12 - 06/07/12

Lab Control Sample Summary
Inorganic Parameters

Units: ug/L
Basis: NA

Lab Control Sample
J1202569-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Total Recoverable	6020	50.6	50.0	101	80-120
Barium, Total Recoverable	6020	50.2	50.0	100	80-120
Cadmium, Total Recoverable	6020	51.1	50.0	102	80-120
Chromium, Total Recoverable	6020	51.8	50.0	104	80-120
Copper, Total Recoverable	6020	51.4	50.0	103	80-120
Iron, Total Recoverable	6010B	5220	5000	104	80-120
Lead, Total Recoverable	6020	50.7	50.0	101	80-120
Manganese, Total Recoverable	6020	50.7	50.0	101	80-120
Mercury, Total	7470A	1.35	1.25	108	80-120
Selenium, Total Recoverable	6020	50.3	50.0	101	80-120
Silver, Total Recoverable	6020	51.9	50.0	104	80-120
Zinc, Total Recoverable	6020	101	100	101	80-120

COLUMBIA ANALYTICAL SERVICES, INC.

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QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project	IP-Roanoke Rapids/300018	**Date Collected:**	05/31/12
Sample Matrix:	Water	**Date Received:**	06/01/12
		Date Analyzed:	06/05/12

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	MW-LG-DupA	**Units:**	mg/L
Lab Code:	J1202569-002	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1202569-002DUP2 Result	Average	RPD	RPD Limit
Chemical Oxygen Demand, Total	SM21 5220 D	20	16	26	30	27.6	14	20
Solids, Total Dissolved (TDS)	160.1	10	10	178	172	175	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project	IP-Roanoke Rapids/300018	**Date Collected:**	05/31/12
Sample Matrix:	Water	**Date Received:**	06/01/12
		Date Analyzed:	06/01/12

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	MW-LG-1	**Units:**	pH Units
Lab Code:	J1202569-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1202569-001DUP1 Result	Average	RPD	RPD Limit
pH	9040B	-	-	6.34	6.37	6.36	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/31/12
Sample Matrix:	Water	**Date Received:**	06/01/12
		Date Analyzed:	06/5/12
		Date Extracted:	06/5/12

Matrix Spike Summary
Chemical Oxygen Demand, Total

Sample Name:	MW-LG-DupA	**Units:**	mg/L
Lab Code:	J1202569-002	**Basis:**	NA
Analysis Method:	SM21 5220 D		
Prep Method:	Method		

Matrix Spike
J1202569-002MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Chemical Oxygen Demand, Total	26	535	500	102	90-110

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

QA/QC Report

Client: EarthCon Site Services Inc
Project: IP-Roanoke Rapids/300018
Sample Matrix: Water

Service Request: J1202569
Date Analyzed: 06/01/12 - 06/07/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Lab Control Sample
J1202569-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Biochemical Oxygen Demand (BOD)	405.1	198	198	100	84.6-115.4
Carbon, Total Organic (TOC)	415.1	47.2	50.0	94	90-110
Chemical Oxygen Demand, Total	SM21 5220 D	516	500	103	95-105
Chloride	300.0	48.8	50.0	98	90-110
Fluoride	300.0	5.06	5.00	101	90-110
Nitrate as Nitrogen	300.0	4.80	5.00	96	90-110
Solids, Total Dissolved (TDS)	160.1	298	300	99	85-115
Sulfate	300.0	50.1	50.0	100	90-110

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

QA/QC Report

Client: EarthCon Site Services Inc
Project: IP-Roanoke Rapids/300018
Sample Matrix: Water

Service Request: J1202569
Date Analyzed: 6/4/12

Lab Control Sample Summary
General Chemistry Parameters

Units: uMHOS/cm
Basis: NA

Lab Control Sample
J1202569-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Conductivity at 25 Degrees Celsius	120.1	992	1000	99	90-110

ALS Environmental

Cooler Receipt Form

Client: Earthcon Service Request #: J12025697

Project: IP Roanoke Rapids

Cooler received on 6.1.12 and opened on 6.1.12 GB

COURIER: ALS UPS FEDEX Client Other _____ Airbill # 898738276092

1	Were custody seals on outside of cooler?	Yes	No		
	If yes, how many and where?	#: 1 on lid		other	
2	Were seals intact and signature and date correct?	Yes	No	N/A	
3	Were custody papers properly filled out?	Yes	No	N/A	
4	Temperature of cooler(s) upon receipt (Should be > 0°C and < 6°C)	1.7			
5	Thermometer ID	T71			
6	Temperature Blank Present?	Yes	No		
7	Were Ice or Ice Packs present	Ice	Ice Packs	No	
8	Did all bottles arrive in good condition (unbroken, etc....)?	Yes	No	N/A	
9	Type of packing material present	Netting	Vial Holder	Bubble Wrap	
		Paper	Styrofoam	Other	N/A
10	Were all bottle labels complete (sample ID, preservation, etc....)?	Yes	No	N/A	
11	Did all bottle labels and tags agree with custody papers?	Yes	No	N/A	
12	Were the correct bottles used for the tests indicated?	Yes	No	N/A	
13	Were all of the preserved bottles received with the appropriate preservative?	Yes	No	N/A	
	HNO3 pH<2 H2SO4 pH<2 ZnAc2/NaOH pH>9 NaOH pH>12 HCl pH<2				
	Preservative additions noted below				
14	Were all samples received within analysis holding times?	Yes	No	N/A	
15	Were all VOA vials free of air bubbles? If present, note below	Yes	No	N/A	
16	Where did the bottles originate?	ALS	Client		

Sample ID	Reagent	Lot #	ml added	Initials Date/Time

Additional comments and/or explanation of all discrepancies noted above: No sample date or time on the bottle labels.

Client approval to run samples if discrepancies noted: _____ Date:

Columbia Analytical Services

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

www.cestlab.com

9143 Philips Highway, Ste 200 • Jacksonville, FL 32256 (904) 739-2277 • 800-695-7222 x06 • FAX (904) 739-2011 PAGE _____ OF _____

SR # J1202569

J1202569 5
EarthCon Site Services Inc
IP-Roanoke Rapids

Project Name	IP-Roanoke Rapids
Project Number	300018
Project Manager	Pete Ramsey
Email Address	
Company/Address	EARTHCON 1880 West OAK PKWY Bldg 100 Ste 106
Phone #	770-973-2100
FAX#	
Sampler's Signature	
Sampler's Printed Name	Jim McCormick

ANALYSIS REQUESTED (Include Method Number and Co

PRESERVATIVE

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	TOX	conductivity, pH, TDS, Bicarb, Alk	Methane	COD	TOC
MW-LG-1		5-31-12	1115	GW	7	X	X	X	X	X
MW-LG-Dup1		↓	—	GW	7	X	X	X	X	X

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS

1.7°C

T71

See QAPP ☐

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ STANDARD
REQUESTED FAX DATE
_____
REQUESTED REPORT DATE
_____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Specialized Forms / Custom Report
Edata ____ Yes ____ No

INVOICE INFORMATION
PO#
BILL TO:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Jim McCormick	Printed Name	Printed Name	Printed Name: Jim Stover	Printed Name	Printed Name
Firm: EARTHCON	Firm: FedEx	Firm: FedEx	Firm: ACS	Firm	Firm
Date/Time: 5-31-12 1700	Date/Time	Date/Time	Date/Time: 6-1-12 0930	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Retained by Client

JSCOC-3/11

Columbia Analytical Services
9143 Phillips Highway, Suite 200
Jacksonville, FL 32256
Tel 904-739-2277
Fax 904-739-2011

Appendix A

Subcontracted Analytical Results

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

7/5/2012 3:16:45PM

Client: Columbia Analytical Services (9477)
9143 Philips Highway, Suite 200
Jacksonville, FL 32256

Attn: Jerry Allen

Work Order: NWF0697
Project Name: Columbia Analytical Services
Project Number: J1202569
Date Received: 06/07/12

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
MW-LG-1	NWF0697-01	05/31/12 13:15
MW-LG-DupA	NWF0697-02	05/31/12 00:01

Samples were received into laboratory at a temperature of 3.10 °C.

Comments:

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, or the employee or agent responsible for delivering this material to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited. If you have recieved this material in error, please notify us immediately.

Results are reported on a wet weight basis unless otherwise noted

The reported results were obtained in compliance with 2003 NELAC standards unless otherwise noted.

These results relate only to the items tested

Estimated uncertainty is available upon request.

Florida Certification Number: E87358

This report has been electronically signed.

Approved By:

JA Mitchell

TestAmerica Nashville
Johnny A. Mitchell
National Program Director

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client:	Columbia Analytical Services (9477) 9143 Philips Highway, Suite 200 Jacksonville, FL 32256	Work Order:	NWF0697	Sampled:	05/31/12
		Project:	Columbia Analytical Services	Received:	06/07/12
		Project Number:	J1202569		
Attn:	Jerry Allen				

LABORATORY REPORT
Sample ID: MW-LG-1 - Lab Number: NWF0697-01 - Matrix: Water

CAS #	Analyte	Result	Q	Units	PQL	Dil Factor	Analyzed Date/Time	By	Method	Batch
General Chemistry Parameters										
TOX	Total Organic Halides	0.0300	J4,U	mg/L	0.0300	1	06/26/12 07:30	SHJ	SW846 9020B	12F3571

LABORATORY REPORT
Sample ID: MW-LG-DupA - Lab Number: NWF0697-02 - Matrix: Water

CAS #	Analyte	Result	Q	Units	PQL	Dil Factor	Analyzed Date/Time	By	Method	Batch
General Chemistry Parameters										
TOX	Total Organic Halides	0.0300	U	mg/L	0.0300	1	06/20/12 14:22	SHJ	SW846 9020B	12F3571

TestAmerica Nashville
Johnny A. Mitchell
National Program Director

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client: Columbia Analytical Services (9477)
9143 Philips Highway, Suite 200
Jacksonville, FL 32256
Attn: Jerry Allen

Work Order: NWF0697
Project: Columbia Analytical Services
Project Number: J1202569

Sampled: 05/31/12
Received: 06/07/12

SAMPLE EXTRACTION DATA

Parameter	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Method
General Chemistry Parameters	NWF0697-01	100.0 mL	1.0 mL	06/26/2012	SHJ	NO PREP
General Chemistry Parameters	NWF0697-02	100.0 mL	1.0 mL	06/20/2012	SHJ	NO PREP

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number
General Chemistry Parameters					
Total Organic Halides	0.0300		mg/L	12F3571	12F3571-BLK1

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Q.C. Batch
General Chemistry Parameters							
Total Organic Halides	0.250	0.247		mg/L	99	90 - 120	12F3571

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	RPD	RPD Limit	Q.C. Batch	Sample Duplicated
General Chemistry Parameters										
Total Organic Halides		0.245		mg/L	0.250	98	0.9	20	12F3571	

PROJECT QUALITY CONTROL DATA
Matrix Spike

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked
General Chemistry Parameters									
Total Organic Halides	<0.0300	0.0698		mg/L	0.100	70	70 - 130	12F3571	NWF0697-02
Total Organic Halides	<0.0300	0.0601	J4	mg/L	0.100	60	70 - 130	12F3571	NWF0697-01

TestAmerica Nashville
Johnny A. Mitchell
National Program Director

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client:	Columbia Analytical Services (9477) 9143 Philips Highway, Suite 200 Jacksonville, FL 32256	Work Order:	NWF0697	Sampled:	05/31/12
		Project:	Columbia Analytical Services	Received:	06/07/12
		Project Number:	J1202569		
Attn:	Jerry Allen				

CERTIFICATION SUMMARY

TestAmerica Nashville

Method	Matrix	A2LA	AIHA	Nelac	Florida
SW846 9020B	Water		N/A	X	X

DATA QUALIFIERS AND DEFINITIONS

J4 The sample matrix interfered with the ability to make an accurate determination.

ADDITIONAL COMMENTS

When insufficient sample volume is received for Matrix Spike and Matrix Spike Duplicate, Laboratory Control Spike and Laboratory Control Spike Duplicate data is used for batch QC.

TestAmerica Nashville
Johnny A. Mitchell
National Program Director

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEI

NWF0697

Cooler Received/Opened On 6/7/2012 @ 1000

1. Tracking # 12X5W098014243 9002

Courier: UPS IR Gun ID Raynger

2. Temperature of rep. sample or temp blank when opened: 3.1 *Degrees Celsius*

3. If item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

   If yes, how many and where: 1 front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry Ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # _____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA 6.7.12

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA 6.7.12

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES NO Was a PIPE generated? YES NO #_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 6/24/09

Columbia Analytical Services, Inc. Chain of Custody

9143 Philips Highway - Jacksonville, FL 32256 - 904-739-2277 - FAX 904-739-2011

CAS Contact: Jerry Allen

Project Number: J1202569
Project Manager: Jerry Allen

NWF0697
07/09/12 23:59

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	TOX 9020B	
J1202569-001	MW-LG-1	2	Water	5/31/12	1315	~~Middletown~~ TA	X	NWF 0697-01
J1202569-002	MW-LG-DupA	2	Water	5/31/12	0000	~~Middletown~~ Nashville	X	02

Test Comments
TOX - 9020B J1202569-001,2 Send to Test America Nashville TN

Special Instructions/Comments	Turnaround Requirements	Report Requirements	Invoice Information
PLEASE SEND RESULTS TO MANDY SULLIVAN	____RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 ____STANDARD Requested FAX Date: _____ Requested Report Date: 06/15/12	____I. Results Only ____II. Results + QC Summaries ____III. Results + QC and Calibration Summaries ____IV. Data Validation Report with Raw Data PQL/MDL/J Y EDD Y	PO# J1202569 Bill to

Relinquished By: [signature] 6.6.12 Received By: [signature] TAW 6-7-12@~~08~~ 1000 @6-7-12 Airbill Number: _____

Memorandum

Date:	July 25, 2012
To:	Pat Kelley
From:	Mary Ann Brookshire
Subject:	Quality Assurance Review
Project:	International Paper - Roanoke Rapids, NC - Low Ground Landfill
Sampling Dates:	May 30 and 31, 2012
Project Number:	300018

1.0 Introduction

This memorandum presents the cursory validation of the water sample analyses listed in Table 1. The analyses were performed by Columbia Analytical Services, Inc. with the exception of the total organic halide analysis that was subcontracted to Test America. The criteria used to qualify data are from the *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2004), the analytical methods, or the professional judgment of the validation chemist. The following laboratory deliverables were reviewed during the validation process:

- Chain-of-custody (COC) documentation to assess holding times and verify report completeness
- Laboratory quality control (QC) sample results, including method blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), and laboratory duplicates
- Analytical results to verify reporting limits

Table 1—Sample Data Reviewed

Sample ID	Laboratory ID	Metals[a]	Wet Chem[b]
MW-LG-6	J1202543-001	X	X
MW-LG-5	J1202543-002	X	X
MW-LG-3	J1202543-003	X	X
MW-LG-7	J1202543-004	X	X
MW-LG-1	J1202569-005	X	X
MW-LG-DUPA	J1202569-006	X	X

[a] Total metals by methods 6010B, 6020, and 7470A (USPEPA 1996)

[b] BOD by method 405.1, TOC by method 415.1, COD by method 5220D, pH by method 9040B, conductivity by method 120.1, TDS by 160.1, TOX by method 9020B and nitrate, sulfate, fluoride and chloride by method 300 (SM 1992, USEPA 1983, USEPA 1996, and USEPA 1999b)

2.0 Data Validation

2.1 Custody, Preservation, and Completeness

Sample custody was maintained from sample collection to receipt at the laboratory. The reports are complete and contain results for the samples and tests requested on the COC forms. The samples were received intact and were properly preserved.

2.2 Metals Analyses

The samples noted on Table 1 were analyzed for total metals by methods 6010B, 6020 and 7470A.

2.2.1 Holding Times

The samples were analyzed within the required holding times.

2.2.2 Blank Analyses

2.2.2.1 Method Blanks

Method blanks were analyzed at the required frequency. Target analytes were not detected at concentrations above the method detection limits in the method blank sample with the following exception.

- Copper was detected in the method blank associated with J1202543 at a concentration of 1.4 ug/L.

Functional Guidelines prescribes three qualifications schemes for blank contamination, (1) associated sample concentrations that are non-detect are not qualified, (2) associated sample concentrations less than the reporting limit and greater than the MDL are qualified as undetected (U) at the reporting limit, and (3) associated sample concentrations greater than the reporting limit are qualified based upon professional judgment. The copper data were qualified as described in Section 5.

2.2.2.2 Field Blanks

Field blank samples were not collected. Data qualification is not required.

2.2.3 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

MS/MSDs were analyzed as required. The recoveries and RPDs for the MS/MSD analyses are within the laboratory QC limits with the exceptions of barium and manganese. The MS/MSD criteria are not applicable for barium and manganese as concentrations of these metals in the parent sample are greater than four times the spike amount.

2.2.4 Laboratory Control Sample

LCS samples were analyzed as required. The percent recovery values are within the laboratory QC limits.

2.2.5 Laboratory Reporting Limits

The reporting limits are consistent with method reporting limits (MRL) with the exception of samples requiring dilutions.

2.2.6 Field Duplicates

One field duplicate pair (MW-LG-1/MW-LG-DUPA) was collected with these samples. The field duplicate results are consistent with the sample results. The RPDs for the detected analytes are provided in the table below.

Sample ID	Duplicate ID	Parameter	Units	Sample Result	Duplicate Result	RPD
MW-LG-1	MW-LG-DUPA	Arsenic	ug/L	0.5 J	0.8 J	NC
		Barium	ug/L	100	108	7.7
		Chromium	ug/L	1.8	1.4	25.0
		Copper	ug/L	3.8	3.4	11.1
		Iron	ug/L	5390	5900	9.0
		Lead	ug/L	1.62	1.48	9.0
		Manganese	ug/L	432	468	8.0
		Mercury	ug/L	0.03 J	0.03 J	NC
		Zinc	ug/L	2.7 J	2.8 J	NC

NC – Not calculable, at least one result is less than the method reporting limit.

2.2.7 Overall Assessment of Data Usability

The usability of the data is based on the EPA guidance documents noted previously. Based upon the information presented here, the data are acceptable with qualification.

2.3 General Chemistry Analyses

The samples were analyzed for biochemical oxygen demand (BOD), total organic carbon (TOC), chemical oxygen demand (COD), pH, conductivity, total dissolved solids (TDS), nitrate, fluoride, sulfate, chloride, and total organic halides (TOX).

2.3.1 Holding Times

The samples were analyzed within the required holding times with the following exception.

- The pH analysis was performed beyond the holding time of ASAP. The pH results for each sample are qualified as estimated (J).

2.3.2 Blank Analyses

2.3.2.1 Method Blanks

Method blanks were analyzed at the required frequency. Target analytes were not detected in the method blanks with the following exceptions.

- TOC was detected in the method blank associated with both SDGs J1202543 and J1202569 at a concentration of 0.1 mg/L.
- TOX was detected in the method blank associated with SDG J1202569 at a concentration of 0.03 mg/L.

Functional Guidelines prescribes three qualifications schemes for blank contamination between the MDL and reporting limit, (1) associated sample concentrations that are non-detect are not qualified, (2) associated sample concentrations less than the reporting limit and greater than the MDL are qualified as undetected (U) at the reporting limit, and (3) associated sample concentrations greater than the reporting limit are qualified based upon professional judgment. The TOC data were not qualified as the associated sample concentrations were significantly greater than the method blank concentration. The TOX data were not qualified as the associated sample concentrations were non-detect.

2.3.2.2 Field Blanks

Field blank samples were not collected. Data qualification is not required.

2.3.3 Matrix Spike Analyses

An MS sample was analyzed for COD, chloride, fluoride, nitrate, sulfate, and TOX. The MS recoveries are within the laboratory QC limits with the following exception.

- The MS recovery for TOX is 60 percent, which is below the 70 to 130 percent laboratory QC limit. Data are not qualified as the associated MSD recovery was within laboratory QC limits and a trend is not identified.

2.3.4 Matrix Duplicate Analyses

Matrix duplicates (MD) were analyzed as required for the pH, COD, chloride, conductivity, fluoride, nitrate, TDS, TOX, and sulfate. The RPDs are within the QC limits.

2.3.5 Laboratory Control Sample

LCS samples were analyzed as required. The percent recovery values are within the laboratory QC limits.

2.3.6 Laboratory Reporting Limits

The reporting limits are consistent with method reporting limits.

2.3.7 Field Duplicates

One field duplicate pair (MW-LG-1/MW-LG-DUPA) was collected with these samples. The field duplicate results are consistent with the sample results. The RPDs for the detected analytes are provided in the table below.

Sample ID	Duplicate ID	Parameter	Units	Sample Result	Duplicate Result	RPD
MW-LG-1	MW-LG-DUPA	Total Organic Carbon	mg/L	5.1	5	2.0
		Biochemical Oxygen Demand	mg/L	18.6	21.9	16.3
		Chemical Oxygen Demand	mg/L	35	26	29.5
		Chloride	mg/L	3.27	3.66	11.3
		Conductivity	umhos/com	218	240	9.6
		Fluoride	mg/L	0.16	0.16	NC
		pH	S.U.	6.34	6.33	0.2
		Total Dissolved Solids	mg/L	169	178	5.2
		Sulfate	mg/L	10.5	9.34	11.7

NC – Not calculable, at least one result is less than the method reporting limit.

2.3.8 Overall Assessment of Data Usability

The usability of the data is based on the EPA guidance documents noted previously. Based upon the information presented here, the data are acceptable with qualification. The following information was noted in the case narratives.

- Seed depletion did not meet acceptance limits for BOD analyses. The BOD results for each sample in SDGs J1202543 and J1202569 were qualified as estimated (J) and estimated detection limit (UJ).

- Sample dilution series in the BOD analyses of samples MW-LG-3 and MW-LG-7 did not meet the oxygen depletion criteria. BOD results for these samples were previously qualified as estimated (J).

- Samples MW-LG-1, MW-LG-DUPA, and MW-LG-5 exhibited signs of potential toxicity for the BOD analysis yielding successively lower results as the sample dilution decreased. The results for BOD for these samples are considered estimated.

3.0 Data Qualifier Definitions

The following data validation qualifiers were used in the review of this data set. These qualifiers are from the Contract Laboratory Program National Functional Guidelines for Organic Data Review (USEPA 1999).

U The analyte was analyzed for but 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.

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.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the samples and meet quality control criteria. The presence or absence of the analyte cannot be verified.

4.0 References

SM 1992. Standard Methods for the Examination of Water and Waste, 18th Edition. 1992.

USEPA. 1983. Methods for Chemical Analysis of Water and Waste EPA/600/4-79/020. United States Environmental Protection Agency. Office of Research and Development. March 1983.

USEPA. 1996. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) Third Edition, Updates I, II, IIA, IIB, and III. United States Environmental Protection Agency. Office of Solid Waste. December 1996.

USEPA. 1999a. Contract Laboratory Program National Functional Guidelines for Organic Data Review. U.S. Environmental Protection Agency Office of Emergency and Remedial Response. EPA540/R-99/008. October 1999.

USEPA. 1999b. Method 1664, Revision A: N-Hexane Extractable Meterial (HEM; Oil and Grease) and Silica Gel Treated N-Hexane Extractable Material by Extraction and Gravimetry EPA-821-R-98-002. United States Environmental Protection Agency. Office of Water. February 1999.

USEPA. 2004. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. U.S. Environmental Protection Agency Office of Superfund Remediation and Technology Innovation. EPA 540-R-04-004. October 2004.

5.0 SUMMARY OF QUALIFIED DATA

Sample ID	Analyte	Qualifier	Reason for Qualification
MW-LG-6	Copper	U	Result < 5x blank value and > MRL
MW-LG-5	Copper	U	Result < 5x blank value and > MRL
MW-LG-3	Copper	U	Result < 5x blank value and > MRL
MW-LG-7	Copper	U	Result < 5x blank value and > MRL
MW-LG-6	pH	J	Analyzed beyond the holding time
MW-LG-5	pH	J	Analyzed beyond the holding time
MW-LG-3	pH	J	Analyzed beyond the holding time
MW-LG-7	pH	J	Analyzed beyond the holding time
MW-LG-1	pH	J	Analyzed beyond the holding time
MW-LG-DupA	pH	J	Analyzed beyond the holding time
MW-LG-6	BOD	J	Seed depletion did not meet acceptance limits
MW-LG-5	BOD	J	Seed depletion did not meet acceptance limits
MW-LG-3	BOD	UJ	Seed depletion did not meet acceptance limits
MW-LG-7	BOD	UJ	Seed depletion did not meet acceptance limits
MW-LG-1	BOD	J	Seed depletion did not meet acceptance limits
MW-LG-DupA	BOD	J	Seed depletion did not meet acceptance limits

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 08:24
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-6	**Basis:**	NA
Lab Code:	J1202543-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	06/04/12	6/1/12	
Barium, Total Recoverable	6020	**419**	ug/L	2.0	0.5	1	06/04/12	6/1/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/04/12	6/1/12	
Chromium, Total Recoverable	6020	**3.6**	ug/L	1.0	0.2	1	06/04/12	6/1/12	
Copper, Total Recoverable	6020	**1.0 ~~B~~** U	ug/L	1.0	0.8	1	06/04/12	6/1/12	
Iron, Total Recoverable	6010B	**140**	ug/L	100	3	1	06/04/12	6/1/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	06/04/12	6/1/12	
Manganese, Total Recoverable	6020	**1090**	ug/L	2.0	0.2	1	06/04/12	6/1/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	06/01/12	5/31/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/04/12	6/1/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/04/12	6/1/12	
Zinc, Total Recoverable	6020	**4.4 J**	ug/L	5.0	1.6	1	06/04/12	6/1/12	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 09:53
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-5	**Basis:**	NA
Lab Code:	J1202543-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**1.4**	ug/L	1.0	0.5	1	06/04/12	6/1/12	
Barium, Total Recoverable	6020	**128**	ug/L	2.0	0.5	1	06/04/12	6/1/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/04/12	6/1/12	
Chromium, Total Recoverable	6020	**1.6**	ug/L	1.0	0.2	1	06/04/12	6/1/12	
Copper, Total Recoverable	6020	**1.9** ~~B~~ U	ug/L	1.0	0.8	1	06/04/12	6/1/12	
Iron, Total Recoverable	6010B	**15200**	ug/L	100	3	1	06/04/12	6/1/12	
Lead, Total Recoverable	6020	**0.29 J**	ug/L	0.50	0.12	1	06/04/12	6/1/12	
Manganese, Total Recoverable	6020	**13700**	ug/L	200	20	100	06/06/12	6/1/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	06/01/12	5/31/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/04/12	6/1/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/04/12	6/1/12	
Zinc, Total Recoverable	6020	**11.2**	ug/L	5.0	1.6	1	06/04/12	6/1/12	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 11:36
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-3	**Basis:**	NA
Lab Code:	J1202543-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	06/04/12	6/1/12	
Barium, Total Recoverable	6020	**45.3**	ug/L	2.0	0.5	1	06/04/12	6/1/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/04/12	6/1/12	
Chromium, Total Recoverable	6020	**0.5 J**	ug/L	1.0	0.2	1	06/04/12	6/1/12	
Copper, Total Recoverable	6020	**1.1 ~~J~~ U**	ug/L	1.0	0.8	1	06/04/12	6/1/12	
Iron, Total Recoverable	6010B	**30 J**	ug/L	100	3	1	06/04/12	6/1/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	06/04/12	6/1/12	
Manganese, Total Recoverable	6020	**573**	ug/L	2.0	0.2	1	06/06/12	6/1/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	06/01/12	5/31/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/04/12	6/1/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/04/12	6/1/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	06/04/12	6/1/12	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 14:50
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-7	**Basis:**	NA
Lab Code:	J1202543-004		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	06/04/12	6/1/12	
Barium, Total Recoverable	6020	**118**	ug/L	2.0	0.5	1	06/04/12	6/1/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/04/12	6/1/12	
Chromium, Total Recoverable	6020	**0.8 J**	ug/L	1.0	0.2	1	06/04/12	6/1/12	
Copper, Total Recoverable	6020	**1.0 ~~BJ~~** U	ug/L	1.0	0.3	1	06/04/12	6/1/12	
Iron, Total Recoverable	6010B	**170**	ug/L	100	3	1	06/04/12	6/1/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	06/04/12	6/1/12	
Manganese, Total Recoverable	6020	**265**	ug/L	2.0	0.2	1	06/04/12	6/1/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	06/01/12	5/31/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/04/12	6/1/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/04/12	6/1/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	06/04/12	6/1/12	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/31/12 13:15
Sample Matrix:	Water	**Date Received:**	06/01/12 09:32
Sample Name:	MW-LG-1	**Basis:**	NA
Lab Code:	J1202569-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**0.5 J**	ug/L	1.0	0.5	1	06/07/12	6/6/12	
Barium, Total Recoverable	6020	**100**	ug/L	2.0	0.5	1	06/07/12	6/6/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/07/12	6/6/12	
Chromium, Total Recoverable	6020	**1.8**	ug/L	1.0	0.2	1	06/07/12	6/6/12	
Copper, Total Recoverable	6020	**3.8**	ug/L	1.0	0.3	1	06/07/12	6/6/12	
Iron, Total Recoverable	6010B	**5390**	ug/L	100	3	1	06/05/12	6/4/12	
Lead, Total Recoverable	6020	**1.62**	ug/L	0.50	0.12	1	06/07/12	6/6/12	
Manganese, Total Recoverable	6020	**432**	ug/L	2.0	0.2	1	06/07/12	6/6/12	
Mercury, Total	7470A	**0.03 J**	ug/L	0.10	0.02	1	06/05/12	6/4/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/07/12	6/6/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/07/12	6/6/12	
Zinc, Total Recoverable	6020	**2.7 J**	ug/L	5.0	1.6	1	06/07/12	6/6/12	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/31/12 00:00
Sample Matrix:	Water	**Date Received:**	06/01/12 09:32
Sample Name:	MW-LG-DupA	**Basis:**	NA
Lab Code:	J1202569-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**0.8 J**	ug/L	1.0	0.5	1	06/07/12	6/6/12	
Barium, Total Recoverable	6020	**108**	ug/L	2.0	0.5	1	06/07/12	6/6/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	06/07/12	6/6/12	
Chromium, Total Recoverable	6020	**1.4**	ug/L	1.0	0.2	1	06/07/12	6/6/12	
Copper, Total Recoverable	6020	**3.4**	ug/L	1.0	0.3	1	06/07/12	6/6/12	
Iron, Total Recoverable	6010B	**5900**	ug/L	100	3	1	06/05/12	6/4/12	
Lead, Total Recoverable	6020	**1.48**	ug/L	0.50	0.12	1	06/07/12	6/6/12	
Manganese, Total Recoverable	6020	**468**	ug/L	2.0	0.2	1	06/07/12	6/6/12	
Mercury, Total	7470A	**0.03 J**	ug/L	0.10	0.02	1	06/05/12	6/4/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	06/07/12	6/6/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	06/07/12	6/6/12	
Zinc, Total Recoverable	6020	**2.8 J**	ug/L	5.0	1.6	1	06/07/12	6/6/12	

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7/25/12

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 08:24
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-6	**Basis:**	NA
Lab Code:	J1202543-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**38.0** J	mg/L	2.0	2.0	1	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**18.8**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**67**	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	**21.9**	mg/L	2.5	0.6	5	06/01/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**2940**	uMHOS/cm	1.0	1.0	1	06/04/12	NA	
Fluoride	300.0	**0.28**	mg/L	0.20	0.02	1	05/31/12	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	05/31/12	NA	
pH	9040B	**6.93** ~~X~~J	pH Units	-	-	1	05/31/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**2080**	mg/L	40	40	4	06/05/12	NA	
Sulfate	300.0	**92.0**	mg/L	2.5	0.9	5	06/01/12	NA	

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7/25/12

COLUMBIA ANALYTICAL SERVICES, INC.
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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 09:53
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-5	**Basis:**	NA
Lab Code:	J1202543-002		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**26.1** ~~E~~ J	mg/L	2.0	2.0	1	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**5.9**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**35**	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	**2.99**	mg/L	0.50	0.11	1	05/31/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**839**	uMHOS/cm	1.0	1.0	1	06/04/12	NA	
Fluoride	300.0	**0.19 J**	mg/L	0.20	0.02	1	05/31/12	NA	
Nitrate as Nitrogen	300.0	**0.16 J**	mg/L	0.20	0.03	1	05/31/12	NA	
pH	9040B	**6.20** ~~X~~ J	pH Units	-	-	1	05/31/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**634**	mg/L	10	10	1	06/05/12	NA	
Sulfate	300.0	**229**	mg/L	2.5	0.9	5	06/01/12	NA	

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7/25/12

COLUMBIA ANALYTICAL SERVICES, INC.
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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 11:36
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-3	**Basis:**	NA
Lab Code:	J1202543-003		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	4.0 UJ	mg/L	4.0	4.0	2	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**6.3**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**23**	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	**56.6**	mg/L	0.50	0.11	1	05/31/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**1750**	uMHOS/cm	1.0	1.0	1	06/04/12	NA	
Fluoride	300.0	**0.30**	mg/L	0.20	0.02	1	05/31/12	NA	
Nitrate as Nitrogen	300.0	**10.1**	mg/L	0.20	0.03	1	05/31/12	NA	
pH	9040B	**6.78** ~~X~~ J	pH Units	-	-	1	05/31/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**1210**	mg/L	20	20	2	06/05/12	NA	
Sulfate	300.0	**295**	mg/L	2.5	0.9	5	06/01/12	NA	

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COLUMBIA ANALYTICAL SERVICES, INC.
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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202543
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/30/12 14:50
Sample Matrix:	Water	**Date Received:**	05/31/12 09:15
Sample Name:	MW-LG-7	**Basis:**	NA
Lab Code:	J1202543-004		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	4.0 UJ	mg/L	4.0	4.0	2	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**4.8**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**20**	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	**17.1**	mg/L	0.50	0.11	1	05/31/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**2190**	uMHOS/cm	1.0	1.0	1	06/05/12	NA	
Fluoride	300.0	**0.24**	mg/L	0.20	0.02	1	05/31/12	NA	
Nitrate as Nitrogen	300.0	**0.26**	mg/L	0.20	0.03	1	05/31/12	NA	
pH	9040B	**7.08** ~~X~~ J	pH Units	-	-	1	05/31/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**1480**	mg/L	40	40	4	06/05/12	NA	
Sulfate	300.0	**66.2**	mg/L	0.50	0.18	1	05/31/12	NA	

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COLUMBIA ANALYTICAL SERVICES, INC.
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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/31/12 13:15
Sample Matrix:	Water	**Date Received:**	06/01/12 09:32
Sample Name:	MW-LG-1	**Basis:**	NA
Lab Code:	J1202569-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**18.6** EJ	mg/L	2.0	2.0	1	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**5.1**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**35**	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	**3.27**	mg/L	0.50	0.11	1	06/01/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**218**	uMHOS/cm	1.0	1.0	1	06/05/12	NA	
Fluoride	300.0	**0.16 J**	mg/L	0.20	0.02	1	06/01/12	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	06/01/12	NA	
pH	9040B	**6.34** XJ	pH Units	-	-	1	06/01/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**169**	mg/L	10	10	1	06/05/12	NA	
Sulfate	300.0	**10.5**	mg/L	0.50	0.18	1	06/01/12	NA	

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7/25/12

COLUMBIA ANALYTICAL SERVICES, INC.
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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1202569
Project:	IP-Roanoke Rapids/300018	**Date Collected:**	05/31/12 00:00
Sample Matrix:	Water	**Date Received:**	06/01/12 09:32
Sample Name:	MW-LG-DupA	**Basis:**	NA
Lab Code:	J1202569-002		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**21.9** ~~E~~ J	mg/L	2.0	2.0	1	06/01/12	NA	
Carbon, Total Organic (TOC)	415.1	**5.0**	mg/L	1.0	0.09	1	06/07/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**26**	mg/L	20	16	1	06/05/12	6/5/12	
Chloride	300.0	**3.66**	mg/L	0.50	0.11	1	06/01/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**240**	uMHOS/cm	1.0	1.0	1	06/05/12	NA	
Fluoride	300.0	**0.16 J**	mg/L	0.20	0.02	1	06/01/12	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	06/01/12	NA	
pH	9040B	**6.33** ~~X~~ J	pH Units	-	-	1	06/01/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**178**	mg/L	10	10	1	06/05/12	NA	
Sulfate	300.0	**9.34**	mg/L	0.50	0.18	1	06/01/12	NA	

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7/25/12

Client Sample Results

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Client Sample ID: MW-LG-5
Date Collected: 05/30/12 09:53
Date Received: 06/01/12 10:10

Lab Sample ID: NWF0129-01
Matrix: Water

5

Method: SW846 9020B - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Halides	ND		0.0300		mg/L		06/26/12 07:30	06/26/12 07:30	1.00

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7/25/12

Client Sample Results

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Client Sample ID: MW-LG-7
Date Collected: 05/30/12 14:50
Date Received: 06/01/12 10:10

Lab Sample ID: NWF0129-02
Matrix: Water

Method: SW846 9020B - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Halides	ND		0.0300		mg/L		06/26/12 07:30	06/26/12 07:30	1.00

NIB
7/25/12

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Client Sample Results

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Client Sample ID: MW-LG-3 (Received 6/7/12 @10:00)
Date Collected: 05/30/12 11:36
Date Received: 06/01/12 10:10

Lab Sample ID: NWF0129-04
Matrix: Water

5

Method: SW846 9020B - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Halides	0.0557	P13	0.0300		mg/L		06/26/12 07:30	06/26/12 07:30	1.00

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7/25/12

Client Sample Results

Client: Columbia Analytical Services (9477)
Project/Site: J1202543

TestAmerica Job ID: NWF0129

Client Sample ID: MW-LG-6
Date Collected: 05/30/12 11:36
Date Received: 06/01/12 10:10

Lab Sample ID: NWF0129-05
Matrix: Water

5

Method: SW846 9020B - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Halides	ND	P13	0.0330		mg/L		06/26/12 07:30	06/26/12 07:30	1.00

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client:	Columbia Analytical Services (9477) 9143 Philips Highway, Suite 200 Jacksonville, FL 32256	Work Order:	NWF0697	Sampled:	05/31/12
		Project:	Columbia Analytical Services	Received:	06/07/12
		Project Number:	J1202569		
Attn:	Jerry Allen				

LABORATORY REPORT

Sample ID: MW-LG-1 - Lab Number: NWF0697-01 - Matrix: Water

CAS #	Analyte	Result	Q	Units	PQL	Dil Factor	Analyzed Date/Time	By	Method	Batch
General Chemistry Parameters										
TOX	Total Organic Halides	0.0300	J4,U	mg/L	0.0300	1	06/26/12 07:30	SHJ	SW846 9020B	12F3571

LABORATORY REPORT

Sample ID: MW-LG-DupA - Lab Number: NWF0697-02 - Matrix: Water

CAS #	Analyte	Result	Q	Units	PQL	Dil Factor	Analyzed Date/Time	By	Method	Batch
General Chemistry Parameters										
TOX	Total Organic Halides	0.0300	U	mg/L	0.0300	1	06/20/12 14:22	SHJ	SW846 9020B	12F3571

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7/25/12

TestAmerica Nashville
Johnny A. Mitchell
National Program Director