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Environmental Challenges
BUSINESS SOLUTIONS

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February 7, 2013

Mr. 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 Company, EarthCon Consultants P.C. (EarthCon) is submitting the attached Semi-annual Environmental Monitoring Report for the November 2012 sampling event completed for the above referenced site. Also enclosed is the North Carolina (NC) Solid Waste Section summary table along with the laboratory report and the EarthCon Quality Assurance Review of the laboratory data.

The November 2012 sampling activities were conducted by EarthCon and included obtaining depth to groundwater measurements from the five site monitoring wells (MWLG-1, MWLG-3, MWLG-5, MWLG-6, and MWLG-7), and then purging and sampling each well according to EPA protocol. Copies of the field sampling forms and field notes completed by EarthCon personnel are attached to this report. The groundwater samples were preserved according to EPA protocol and shipped to Columbia Analytical Services (ALS) in Jacksonville, FL, a North Carolina certified laboratory. The analytical results for this sampling event are attached.

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

- 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 four groundwater samples (MW-LG1, MW-LG3, MW-LG5, and MW-LG6) 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 results of two groundwater samples (MW-LG1 and MW-LG5) were below the NC 2L range of 6.5 to 8.5 S.U. for pH.

Groundwater analyses from monitoring well MW-LG3 have historically shown sporadic nitrate concentrations which are elevated above the generally observed trends. Occasionally the nitrate value exceeds the NC 2L standard of 10 mg/L, as was observed in this sampling event where the reported value was 15.5 mg/L. Over the last 10 monitoring events, nitrate was observed during one other event at a similar concentration.

The detected manganese, iron, pH, and sulfate concentrations in site wells are reported within the range of background concentrations for this site. Previously, the Solid Waste Section has waived the requirement to prepare a Water Quality Assessment Plan for this site. EarthCon continues to concur with this waiver and does not recommend any changes to the monitoring program at this time.

If you have any questions on this report feel free to call at 770-973-2100.

Sincerely,

Patrick Kelley, CHMM
Senior Scientist

Peter Ramsey, PG
Project Manager

Russell K. Schlecht, PE
Principal Engineer

cc: Phil Slowiak, International Paper

Attachments:
- NC Solid Waste Section Summary Table
- Field Notes and Chain-of- Custody
- ALS Laboratory Analytical Report
- EarthCon Quality Assurance Review

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).
- In accordance with NC General Statutes Chapter 89C and 89E and NC Solid Waste Management Rules 15A NCAC 13B, be sure to affix a seal to the bottom of this page, when applicable.
- 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

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

EarthCon Consultants, P.C.

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	November 19, 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	Senior Geologist	678-569-2882
Facility Representative Name (Print)	Title	(Area Code) Telephone Number

Peter E Ramsey — 2/7/13

Signature — Date

Affix NC Licensed/ Professional Geologist/Engineer Seal here:

Revised 01/2007

International Paper		**100 Gaston Road Low Ground Landfill**	
Roanoke Rapids Mill		**Roanoke Rapids, NC 2 Monitoring Wells**	
Samples collected on 11/19/12 by Jim McCormick of EarthCon Consultants PC		Contact: Patrick Kelley, EarthCon Consultants PC	
Samples were analyzed by *ALS Environmental Inc	NC Cert. #: 527	Phone 770-973-2100 #2860 or email, pkelley@earthcon.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	U	1.0	11/19/12	11/20/12	11/28/12
42-03	MW-LG 1	7440-39-3	15	Barium	109	ug/L		1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 1	316	316	Biochemical Oxygen Demand	4.0	mg/L	UJ	1.0	11/19/12	NA	11/21/12
42-03	MW-LG 1	7440-43-9	34	Cadmium	0.36	ug/L	J	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 1	317	317	Chemical Oxygen Demand	16	mg/L	U	1.0	11/19/12	11/27/12	11/27/12
42-03	MW-LG 1	16887-00-6	301	Chloride	3.46	mg/L		1.0	11/19/12	NA	11/20/12
42-03	MW-LG 1	7440-47-3	51	Chromium	1.6	ug/L		1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 1	7440-50-8	54	Copper	3.3	ug/L		1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 1	16984-48-8	312	Fluoride	0.12	mg/L	J	1.0	11/19/12	NA	11/28/12
42-03	MW-LG 1	7439-89-6	340	Iron	6.43	mg/L		1.0	11/19/12	11/20/12	11/21/12
42-03	MW-LG 1	7439-92-1	131	Lead	1.29	ug/L		1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 1	7439-96-5	342	Manganese	636	ug/L		1.0	11/19/12	11/20/12	11/21/12
42-03	MW-LG 1	7439-97-6	132	Mercury	0.02	ug/L	J	1.0	11/19/12	11/26/12	11/27/12
42-03	MW-LG 1	14797-55-8	303	Nitrate	0.03	mg/L	U	1.0	11/19/12	NA	11/20/12
42-03	MW-LG 1	321	321	pH - Lab	6.19	pH UNITS	J	1.0	11/19/12	NA	11/20/12
42-03	MW-LG 1	7782-49-2	183	Selenium	1.1	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 1	7440-22-4	184	Silver	0.06	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 1	14808-79-8	315	Sulfate	16.0	mg/L		1.0	11/19/12	NA	11/20/12
42-03	MW-LG 1	311	311	Total Dissolved Solids	162	mg/L		1.0	11/19/12	NA	11/21/12
42-03	MW-LG 1	E-10195	357	Total Organic Carbon	64.6	mg/L		1.0	11/19/12	NA	11/27/12
42-03	MW-LG 1	7440-66-6	213	Zinc	3.1	ug/L	J	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 1			Total Organic Halides	0.1	mg/L	U	1.0	11/19/12	NA	11/26/12
42-03	MW-LG 3	7440-38-2	14	Arsenic	0.5	ug/L	U	1.0	11/19/12	11/20/12	11/28/12
42-03	MW-LG 3	7440-39-3	15	Barium	51.2	ug/L		1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 3	316	316	Biochemical Oxygen Demand	4.0	mg/L	UJ	1.0	11/19/12	NA	11/21/12
42-03	MW-LG 3	7440-43-9	34	Cadmium	0.10	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 3	317	317	Chemical Oxygen Demand	24	mg/L		1.0	11/19/12	11/27/12	11/27/12
42-03	MW-LG 3	16887-00-6	301	Chloride	50.7	mg/L		1.0	11/19/12	NA	11/20/12
42-03	MW-LG 3	7440-47-3	51	Chromium	0.5	ug/L	J	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 3	7440-50-8	54	Copper	1.2	ug/L		1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 3	16984-48-8	312	Fluoride	0.23	mg/L		1.0	11/19/12	NA	11/28/12
42-03	MW-LG 3	7439-89-6	340	Iron	0.040	mg/L	J	1.0	11/19/12	11/20/12	11/21/12
42-03	MW-LG 3	7439-92-1	131	Lead	0.12	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 3	7439-96-5	342	Manganese	931	ug/L		10	11/19/12	11/20/12	11/21/12
42-03	MW-LG 3	7439-97-6	132	Mercury	0.02	ug/L	U	1.0	11/19/12	11/26/12	11/27/12
42-03	MW-LG 3	14797-55-8	303	Nitrate	15.5	mg/L		1.0	11/19/12	NA	11/20/12
42-03	MW-LG 3	321	321	pH - Lab	6.72	pH UNITS	J	1.0	11/19/12	NA	11/20/12
42-03	MW-LG 3	7782-49-2	183	Selenium	1.1	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 3	7440-22-4	184	Silver	0.06	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 3	14808-79-8	315	Sulfate	277	mg/L		1.0	11/19/12	NA	11/28/12
42-03	MW-LG 3	311	311	Total Dissolved Solids	1220	mg/L		2.0	11/19/12	NA	11/21/12
42-03	MW-LG 3	E-10195	357	Total Organic Carbon	91.1	mg/L		1.0	11/19/12	NA	11/27/12
42-03	MW-LG 3	7440-66-6	213	Zinc	1.6	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG 3			Total Organic Halides	0.1	mg/L	U	1.0	11/19/12	NA	11/26/12

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

Roanoke Rapids Mill | **Roanoke Rapids, NC 2 Monitoring Wells**

Samples collected on 11/19/12 by Jim McCormick of EarthCon Consultants PC | Contact: Patrick Kelley, EarthCon Consultants PC

Samples were analyzed by *ALS Environmental Inc | NC Cert. #: 527 | Phone 770-973-2100 #2860 or email. pkelley@earthcon.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-LG5	7440-38-2	14	Arsenic	5.6	ug/L		1.0	11/19/12	11/20/12	11/28/12
42-03	MW-LG5	7440-39-3	15	Barium	150	ug/L		1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG5	316	316	Biochemical Oxygen Demand	4.0	mg/L	UJ	1.0	11/19/12	NA	11/21/12
42-03	MW-LG5	7440-43-9	34	Cadmium	0.1	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG5	317	317	Chemical Oxygen Demand	53	mg/L		1.0	11/19/12	11/27/12	11/27/12
42-03	MW-LG5	16887-00-6	301	Chloride	2.78	mg/L		1.0	11/19/12	NA	11/20/12
42-03	MW-LG5	7440-47-3	51	Chromium	1.4	ug/L		1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG5	7440-50-8	54	Copper	1.0	ug/L	J	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG5	16984-48-8	312	Fluoride	0.13	mg/L	J	1.0	11/19/12	NA	11/28/12
42-03	MW-LG5	7439-89-6	340	Iron	28.3	mg/L		1.0	11/19/12	11/20/12	11/21/12
42-03	MW-LG5	7439-92-1	131	Lead	0.12	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG5	7439-96-5	342	Manganese	12900	ug/L		10	11/19/12	11/20/12	11/21/12
42-03	MW-LG5	7439-97-6	132	Mercury	0.02	ug/L	U	1.0	11/19/12	11/26/12	11/27/12
42-03	MW-LG5	14797-55-8	303	Nitrate	0.03	mg/L	U	1.0	11/19/12	NA	11/20/12
42-03	MW-LG5	321	321	pH - Lab	6.13	pH UNITS	J	1.0	11/19/12	NA	11/20/12
42-03	MW-LG5	7782-49-2	183	Selenium	1.1	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG5	7440-22-4	184	Silver	0.06	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG5	14808-79-8	315	Sulfate	170	mg/L		2.0	11/19/12	NA	11/20/12
42-03	MW-LG5	311	311	Total Dissolved Solids	531	mg/L		1.0	11/19/12	NA	11/21/12
42-03	MW-LG5	E-10195	357	Total Organic Carbon	78.9	mg/L		1.0	11/19/12	NA	11/27/12
42-03	MW-LG5	7440-66-6	213	Zinc	10.2	ug/L		1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG5			Total Organic Halides	0.1	mg/L	U	1.0	11/19/12	NA	11/26/12
42-03	MW-LG6	7440-38-2	14	Arsenic	0.5	ug/L	U	1.0	11/19/12	11/20/12	11/28/12
42-03	MW-LG6	7440-39-3	15	Barium	354	ug/L		1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG6	316	316	Biochemical Oxygen Demand	9.0	mg/L		1.0	11/19/12	NA	11/21/12
42-03	MW-LG6	7440-43-9	34	Cadmium	0.10	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG6	317	317	Chemical Oxygen Demand	56	mg/L		1.0	11/19/12	11/27/12	11/27/12
42-03	MW-LG6	16887-00-6	301	Chloride	23.9	mg/L		1.0	11/19/12	NA	11/20/12
42-03	MW-LG6	7440-47-3	51	Chromium	3.4	ug/L		1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG6	7440-50-8	54	Copper	0.8	ug/L	J	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG6	16984-48-8	312	Fluoride	0.21	mg/L	J	1.0	11/19/12	NA	11/28/12
42-03	MW-LG6	7439-89-6	340	Iron	0.170	mg/L		1.0	11/19/12	11/20/12	11/21/12
42-03	MW-LG6	7439-92-1	131	Lead	0.1	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG6	7439-96-5	342	Manganese	1470	ug/L		1.0	11/19/12	11/20/12	11/21/12
42-03	MW-LG6	7439-97-6	132	Mercury	0.07	ug/L	U	1.0	11/19/12	11/26/12	11/27/12
42-03	MW-LG6	14797-55-8	303	Nitrate	1.84	mg/L		1.0	11/19/12	NA	11/20/12
42-03	MW-LG6	321	321	pH - Lab	6.89	pH UNITS	J	1.0	11/19/12	NA	11/20/12
42-03	MW-LG6	7782-49-2	183	Selenium	1.1	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG6	7440-22-4	184	Silver	0.06	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG6	14808-79-8	315	Sulfate	140.0	mg/L	J	2.0	11/19/12	NA	11/20/12
42-03	MW-LG6	311	311	Total Dissolved Solids	2,390	mg/L		4.0	11/19/12	NA	11/21/12
42-03	MW-LG6	E-10195	357	Total Organic Carbon	260	mg/L	J	1.0	11/19/12	NA	11/27/12
42-03	MW-LG6	7440-66-6	213	Zinc	1.6	ug/L	U	1.0	11/19/12	11/20/12	11/22/102
42-03	MW-LG6			Total Organic Halides	0.1	mg/L	U	1.0	11/19/12	NA	11/26/12

International Paper	**100 Gaston Road Low Ground Landfill**	
Roanoke Rapids Mill	**Roanoke Rapids, NC 2 Monitoring Wells**	
Samples collected on 11/19/12 by Jim McCormick of EarthCon Consultants PC		Contact: Patrick Kelley, EarthCon Consultants PC
Samples were analyzed by *ALS Environmental Inc	NC Cert. #: 527	Phone 770-973-2100 #2860 or email, pkelley@earthcon.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-LG7	7440-38-2	14	Arsenic	0.5	ug/L	U	1.0	11/19/12	11/20/12	11/28/12
42-03	MW-LG7	7440-39-3	15	Barium	219	ug/L		1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG7	316	316	Biochemical Oxygen Demand	4.0	mg/L	UJ	1.0	11/19/12	NA	11/21/12
42-03	MW-LG7	7440-43-9	34	Cadmium	0.10	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG7	317	317	Chemical Oxygen Demand	16	mg/L	U	1.0	11/19/12	11/27/12	11/27/12
42-03	MW-LG7	16887-00-6	301	Chloride	22.7	mg/L		1.0	11/19/12	NA	11/20/12
42-03	MW-LG7	7440-47-3	51	Chromium	0.90	ug/L	J	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG7	7440-50-8	54	Copper	0.8	ug/L	J	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG7	16984-48-8	312	Fluoride	0.15	mg/L	J	1.0	11/19/12	NA	11/28/12
42-03	MW-LG7	7439-89-6	340	Iron	0.005	mg/L	J	1.0	11/19/12	11/20/12	11/21/12
42-03	MW-LG7	7439-92-1	131	Lead	0.12	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG7	7439-96-5	342	Manganese	20	ug/L		1.0	11/19/12	11/20/12	11/21/12
42-03	MW-LG7	7439-97-6	132	Mercury	0.02	ug/L	U	1.0	11/19/12	11/26/12	11/27/12
42-03	MW-LG7	14797-55-8	303	Nitrate	0.33	mg/L		1.0	11/19/12	NA	11/20/12
42-03	MW-LG7	321	321	pH - Lab	7.02	pH UNITS	J	1.0	11/19/12	NA	11/20/12
42-03	MW-LG7	7782-49-2	183	Selenium	1.1	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG7	7440-22-4	184	Silver	0.06	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG7	14808-79-8	315	Sulfate	37	mg/L		1.0	11/19/12	NA	11/20/12
42-03	MW-LG7	311	311	Total Dissolved Solids	1600	mg/L		2.0	11/19/12	NA	11/21/12
42-03	MW-LG7	E-10195	357	Total Organic Carbon	171	mg/L		1.0	11/19/12	NA	11/27/12
42-03	MW-LG7	7440-66-6	213	Zinc	1.6	ug/L	U	1.0	11/19/12	11/20/12	11/22/12
42-03	MW-LG7			Total Organic Halides	0.1	mg/L	U	1.0	11/19/12	NA	11/26/12

* ALS Environmental is formerly known as CAS Inc.
U - Undetected above the MRL/MDL
J - Estimated value

EARTHCON℠

Environmental Challenges
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International Paper — **Groundwater Sampling Record**

WELL No. LG-6	PROJECT #	LOCATION Roanoke Rapids	DATE 11-19-12
SAMPLE No.	PROJECT NAME Landfills	FIELD PERSONNEL/COMPANY JM JH	
SAMPLE TIME: 902	SITE International Paper	FIELD CONDITIONS/WEATHER	

Well Condition Inspection (circle one)

cover: (locked) not locked
number: ~~legible~~ not legible
outer casing: (good) fair poor
inner casing: (good) fair poor
well photographed: yes (no)

Equipment Cleaning Procedures

- potable water and phosphate-free soap
- potable water rinse
- water rinse: distilled deionized
- solvent rinse: acetone hexane
- air dry

Casing Diameter: (circle one)
(2") 4"
6" Other:____

Casing Volume Calculation: $(\pi r^2 h)(7.48\ gal/ft^3)$
Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47

Depth to Water (feet): 9.19
Depth of Well (feet):
Water Column (feet):
Casing Volume (gallons):
Calculated Purge Volume (gallons):
Actual Purge Volume (gallons):

Measuring Point Elevation (feet):
Groundwater Surface Elevation:
LNAPL present: thickness:
DNAPL present: thickness:
Remarks:

Well Evacuation
Water level recovery is: very slow slow moderate fast Bailed dry: yes no

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMP (°C)	pH	CONDUCTIVITY (µs/cm)	DISSOLVED OXYGEN (ppm)	Eh	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
816	0							~~PURGE START~~
822	1L	17.94	6.95	3.340	0.00	-83	16.5	12.08
827	2.5	18.45	7.01	3.26 mS/cm	0.00	-100	0.0	11.96
832	3L	18.12	7.62	3.23	0.0	-104	0.0	11.80
837	4L	18.39	7.00	3.21	6.0	-104	0.0	12.10
841	5L	18.50	7.02	3.21	0.0	-106	0.0	12.31
847	6L	18.37	7.03	3.21	0.0	-107	0.0	12.41
853	7L	18.12	7.03	3.20	0.00	-107	0.0	12.50
859	8L	1803	7.03	3.20	0.00	-108	0.0	12.52

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Hydj Water Level	Solonist		
Water Quality	Horiba	U-52	11-19-12
Turbidity	Lamotte		11-19-12

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS
LG-6			
DUP-1			

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Environmental Challenges
BUSINESS SOLUTIONS

International Paper — **Groundwater Sampling Record**

WELL No. LG-5	PROJECT # 30018	LOCATION Roanoke Rapids NC	DATE 11-19-12
SAMPLE No.	PROJECT NAME Roanoke Rapids	FIELD PERSONNEL/COMPANY JH, JH	
SAMPLE TIME: 10:40	SITE International Paper	FIELD CONDITIONS/WEATHER 50's OVERCAST	

Well Condition Inspection (circle one)

cover:	locked	not locked	
number:	legible	not legible	
outer casing:	good	fair	poor
inner casing:	good	fair	poor
well photographed:	yes	no	

Equipment Cleaning Procedures

- potable water and phosphate-free soap
- potable water rinse
- water rinse: distilled deionized
- solvent rinse: acetone hexane
- air dry

Casing Diameter: (circle one) 2" 4" 6" Other:___

Casing Volume Calculation: $(\pi r^2 h)(7.48\ gal/ft^3)$

Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47

Depth to Water (feet):	9.28	Measuring Point Elevation (feet):	TOC
Depth of Well (feet):		Groundwater Surface Elevation:	
Water Column (feet):		LNAPL present: ___	thickness:
Casing Volume (gallons):		DNAPL present: ___	thickness:
Calculated Purge Volume (gallons):		Remarks:	
Actual Purge Volume (~~gallons~~) Liters	10 L		

Well Evacuation

Water level recovery is: very slow slow moderate fast Bailed dry: yes no

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMP (°C)	pH	CONDUCTIVITY (µs/cm)	DISSOLVED OXYGEN (ppm)	Eh	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
936	0							PURGE START
939	0.5 L	17.88	6.47	0.542	0.57	-88	33.1	10.22
941	1 L	18.10	6.36	0.535	0.39	-82	13.2	10.45
947	2.5 L		Pump	Stopped to Fix				~~10.76~~ 11.1
1004	3.4 L	17.36	6.29	0.526	~~4.0~~ 3.26	-69	39.8	10.95
1013	5 L	18.29	6.23	0.507	0.85	-60	7.6	11.85
1017	6 L	18.31	6.21	0.502	0.52	-58	24.5	12.12
1021	6.5	18.25	6.19	0.499	0.35	-55	61.4	12.35
1026	8 L	18.33	6.19	0.504	0.21	-52	40.1	12.65
1035	9 L	18.16	6.19	0.542	0.00	-46	23.9	13.26
1039	10 L	18.15	6.20	0.553	0.06	-46	5.2	13.55

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Sampling	GeoPump		
Water Level	Solinst		
Water Quality	YSI 556	LL-52	11-19-12

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS
MW LG-5			

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Environmental Challenges
BUSINESS SOLUTIONS

International Paper — **Groundwater Sampling Record**

WELL No. MWLG-3	PROJECT # 300618	LOCATION	DATE 11-19-12
SAMPLE No.	PROJECT NAME Longwood	FIELD PERSONNEL/COMPANY JH, JH	
SAMPLE TIME: 1202	SITE International Paper	FIELD CONDITIONS/WEATHER 50° OVERCAST	

Well Condition Inspection (circle one)

cover:	locked	not locked	
number:	legible	not legible	
outer casing:	good	fair	poor
inner casing:	good	fair	poor
well photographed:	yes	no	

Equipment Cleaning Procedures

- potable water and phosphate-free soap
- potable water rinse
- water rinse: distilled / deionized
- solvent rinse: acetone / hexane
- air dry

Casing Diameter: (circle one) 2" 4" 6" Other:____

Casing Volume Calculation: $(\pi r^2 h)(7.48\ gal/ft^3)$

Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47

Depth to Water (feet):	6.45	Measuring Point Elevation (feet):	TOC
Depth of Well (feet):		Groundwater Surface Elevation:	
Water Column (feet):		LNAPL present: ____ thickness:	
Casing Volume (gallons):		DNAPL present: ____ thickness:	
Calculated Purge Volume (gallons):		Remarks:	
Actual Purge Volume (~~gallons~~) Liters:	6 L		

Well Evacuation

Water level recovery is: very slow slow moderate fast Bailed dry: yes no

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMP (°C)	pH	CONDUCTIVITY (µs/cm)	DISSOLVED OXYGEN (ppm)	Eh	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
1136	0							PURGE START
1139	1L	18.16	6.37	2.01	0.03	101	1.6	7.32
1141	2L	18.10	6.50	1.93	0.12	101	0.0	7.41
1145	3L	18.09	6.56	1.91	0.84	104	0.0	7.61
1149	4L	18.10	6.56	1.93	1.17	109	0.0	7.68
1156	5L	18.05	6.57	1.99	0.85	114	0.0	7.83
1159	6L	18.07	6.52	2.00	0.70	116	0.0	8.01

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Peristaltic Pump	Geotech	GeoPump2	
Water Level	Solinst		
Water Quality	Hach	U-52	11-19-12

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS
MWLG-3			

Replacement Meter Arrived and Used

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Environmental Challenges
BUSINESS SOLUTIONS

International Paper — **Groundwater Sampling Record**

WELL No. MWLG-7	PROJECT # 300018	LOCATION Roanoke Rapids, NC	DATE 11-19-12
SAMPLE No.	PROJECT NAME Low Grounds	FIELD PERSONNEL/COMPANY JM, JH	
SAMPLE TIME: 1252	SITE International Paper	FIELD CONDITIONS/WEATHER 50 Overcast	

Well Condition Inspection (circle one)

cover: locked not locked
number: legible not legible
outer casing: good fair poor
inner casing: good fair poor
well photographed: yes no

Equipment Cleaning Procedures

- potable water and phosphate-free soap
- potable water rinse
- water rinse: distilled deionized
- solvent rinse: acetone hexane
- air dry

Casing Diameter: (circle one) 2" 4" 6" Other:____

Casing Volume Calculation: $(\pi r^2 h)(7.48\ gal/ft^3)$
Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47

Depth to Water (feet): 9.41
Depth of Well (feet):
Water Column (feet):
Casing Volume (gallons):
Calculated Purge Volume (gallons):
Actual Purge Volume ~~(gallons)~~: Liters 5 L

Measuring Point Elevation (feet):
Groundwater Surface Elevation:
LNAPL present: thickness:
DNAPL present: thickness:
Remarks:

Well Evacuation
Water level recovery is: very slow slow moderate fast Bailed dry: yes no

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMP (°C)	pH	CONDUCTIVITY (µs/cm)	DISSOLVED OXYGEN (ppm)	Eh	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
1227	0							PURGE START
1230	1L	16.9	6.81	2.46	0.95	134	0.0	~~7.01~~ 9.69
1235	2L	16.94	6.82	2.47	0.59	134	0.0	~~9.69~~ 9.75
1239	3L	16.94	6.82	2.47	0.31	134	0.0	~~9.79~~ 9.78
1244	4L	16.91	6.82	2.49	0.17	134	0.0	9.74
1250	5L	16.92	6.82	2.50	0.01	134	0.0	9.76

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Peristaltic Pump	Geotech		
Water Level	Solonist		
Water Quality	Horiba	U-52	11-19-12

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS
MWLG-7	TOC, COD, metals, Cond, TDS		
	Cl, F, SO_4, NO_3, BOD, PH, TOX		

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Environmental Challenges
BUSINESS SOLUTIONS

International Paper — **Groundwater Sampling Record**

WELL No. LGMW-1	PROJECT # 3006.18	LOCATION Roanoke Rapids NC	DATE 11-19-12
SAMPLE No.	PROJECT NAME R. Rapids	FIELD PERSONNEL/COMPANY JM, JH	
SAMPLE TIME: 1413	SITE International Paper	FIELD CONDITIONS/WEATHER 50 overcast	

Well Condition Inspection (circle one)

cover: (locked) not locked
number: (legible) not legible
outer casing: (good) fair poor
inner casing: (good) fair poor
well photographed: yes (no)

Equipment Cleaning Procedures

- potable water and phosphate-free soap
- potable water rinse
- water rinse: distilled deionized
- solvent rinse: acetone hexane
- air dry

Casing Diameter: (circle one)
(2) 4"
6" Other:____

Casing Volume Calculation: $(\pi r^2 h)(7.48\ gal/ft^3)$
Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47

Depth to Water (feet):	8.40	Measuring Point Elevation (feet):	TOC
Depth of Well (feet):		Groundwater Surface Elevation:	
Water Column (feet):		LNAPL present:	thickness:
Casing Volume (gallons):		DNAPL present:	thickness:
Calculated Purge Volume (gallons):		Remarks:	
Actual Purge Volume ~~(gallons)~~ Liters:	9 L		

Well Evacuation
Water level recovery is: very slow slow moderate fast Bailed dry: yes no

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMP (°C)	pH	CONDUCTIVITY (µs/cm)	DISSOLVED OXYGEN (ppm)	Eh	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
1314	0							PURGE START
1318	1L	16.96	6.37	0.189	0.00	-80	47.2	9.41
1322	2L	16.93	6.08	0.149	0.00	-62	0.0	9.85
1326	3L	16.77	5.79	0.133	0.00	-46	0.0	10.30
1330	4L	16.74	5.74	0.134	0.00	-50	84.4	10.59
1340	5L	16.70	5.70	0.145	0.00	-65	12.4	11.10
1347	6L	16.71	5.70	0.149	0.00	-873	11.5	11.31
1353	7L	16.71	5.73	0.155	0.00	-81	10.0	11.56
1358	8L	16.70	5.75	0.169	0.00	-85	12.8	11.71
1411	9L	16.70	5.83	0.177	0.00	-96	10.0	12.07

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Geopump/Peristaltic	Geotech		
Water Level Meter	Solinst		
Water Quality	Horiba	U-52	11-19-12

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS
LGMW-1	TOC, COD, Metals, Cond		
	TDS, Cl, F, SO4, NO3, BOD, pH		
	TOX		

ALS Environmental

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 _____

SR#

CAS Contract

Project Name	Project Number
Project Manager	Email Address
Company/Address	
Phone #	FAX #
Sampler's Signature	Sampler's Printed Name

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE

NUMBER OF CONTAINERS

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 _____

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	REMARKS/ ALTERNATE DESCRIPTION

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
Printed Name	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm	Firm	Firm	Firm	Firm	Firm
Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

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

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11-19-12 IP - Roanoke Rapids JM, JH

ARRIVED on site 700am. Meet w/ John And Sign in And get Gate Keys.

Main Access Road Is washed OUT. Flooding from Hurricane Sandy flooded Part of Plant And Washed OUT ~~[illegible]~~ Culverts / Drainage Ditches Landfill Looks OK.

Access is only By offsite Side gate Access. NEED Truck to Access Road and side gate.

SET up to Sample & Purge MWLG-6. Set up to Calibrate Meter
- Equipment Supplied By Pine was worthless - Pump was Not Very responsive
  - Meter full of water
  - Turbid gave Negative Values even After manual Calibration.

Called Pine to get Replacement Meter. USED Equipment until Replacement

Set up to MWLG-6 Purged And sampled for TOC, COD, Metals, Cond, TDS Cl, F, SO_4, NO_3, BOD, pH.

Sampled MWLG-6 @ 902 Collected Dup-1 from MWLG-6

Sampled All wells for Sample constituents unless otherwise Noted

MOB to ~~[illegible]~~ MWLG-5
Sampled MWLG-5 @ 1040
- Stopped Pump to open Meter And Dry out SCREEN was unreadable Until Dry.

MOB to MWLG-3
Sampled MWLG-3 @ 1202
- Replacement Meter Arrived And was ok.

MOB to MWLG-7 - Drive was open And Vehicle Access Possible
Sampled MWLG-7 @ 1252

MOBED MW-LG-1
SAMPLED MWLG-1 @ 1413

PACKED up And Left Site

PACKED Sampler + Rental

Shipped Sampler + Equipment

HEAD Home

End of Day

January 04, 2013

Service Request No:J1205686

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 November 20, 2012
For your reference, these analyses have been assigned our service request number **J1205686.**

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. (CAS) 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. In accordance to the NELAC 2003 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

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

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Enviromental

Jerry Allen
Project Manager

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

(ALS) Environmental

Client: EarthCon Site Services Inc
Project: IP - Roanoke Rapids/209383.11
Sample Matrix: Water

Service Request:J1205686
Date Received:11/20/12

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

Six water samples were received for analysis at Columbia Analytical Services on 11/20/12. 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 sample dilution series for samples MWLG-5, MWLG-7 and MWLG-1 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 these samples. The analysis could not be repeated because holding time for the test had expired.

Method 405.1 (BOD): The dilution series for sample MWLG-3 did not meet the criterion for residual oxygen of at least 1 mg/L. The reporting limits reflect the smallest dilution tested. The analysis could not be repeated because holding time for the test had expired

Method SM 5220D: The Relative Percent Difference (RPD) for the following analyte in the replicate analyses of sample DUP-1 was outside control criteria: COD. All spike recoveries in the associated Laboratory Control Sample (LCS) were within acceptance limits, indicating the analytical batch was in control. No further corrective action was appropriate.

Method 415.1 and 300.0: The matrix spike recoveries of TOC, Fluoride and Sulfate for sample MWLG-6 were outside control criteria. Recoveries in the Laboratory Control Sample (LCS) were acceptable, which indicates the analytical batch was in control. The matrix spike outlier suggests a potential bias in this matrix. No further corrective action was appropriate.

Subcontracted Analytical Parameters:

An aliquot of the samples were delivered to Summit Environmental Technologies, Inc. in Cuyahoga Falls, OH on 11/20/12 for EPA Method 9020B determination. The certified analytical report has been included in its entirety in Appendix A: Subcontracted Analytical Results.

Approved by _____ Date 1/4/2013

ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Florida Department of Health	E82502	6/30/2013
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

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.
S	Surrogate recovery not within specified limits.

Data Qualifiers

CAS Standard

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.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
J1205686-001	MWLG-6	11/19/2012	0902
J1205686-002	MWLG-5	11/19/2012	1040
J1205686-003	MWLG-3	11/19/2012	1202
J1205686-004	MWLG-7	11/19/2012	1252
J1205686-005	MWLG-1	11/19/2012	1413
J1205686-006	DUP-1	11/19/2012	0000

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 09:02
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-6	**Basis:**	NA
Lab Code:	J1205686-001		

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	11/28/12 01:30	11/20/12	
Barium, Total Recoverable	6020	**354**	ug/L	2.0	0.5	1	11/22/12 00:47	11/20/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/22/12 00:47	11/20/12	
Chromium, Total Recoverable	6020	**3.4**	ug/L	1.0	0.2	1	11/22/12 00:47	11/20/12	
Copper, Total Recoverable	6020	**0.8 J**	ug/L	1.0	0.3	1	11/22/12 00:47	11/20/12	
Iron, Total Recoverable	6010B	**170**	ug/L	100	3	1	11/21/12 21:24	11/20/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/22/12 00:47	11/20/12	
Manganese, Total Recoverable	6010B	**1470**	ug/L	10	3	1	11/21/12 21:24	11/20/12	
Mercury, Total	7470A	0.07 U	ug/L	0.10	0.07	1	11/27/12 12:14	11/26/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/22/12 00:47	11/20/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/22/12 00:47	11/20/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	11/22/12 00:47	11/20/12	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 09:02
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-6	**Basis:**	NA
Lab Code:	J1205686-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**9.0**		mg/L	2.0	2.0	1	11/21/12	NA	
Carbon, Total Organic (TOC)	415.1	**260**		mg/L	4.0	0.4	4	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**56**		mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	**23.9**		mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**3200**		uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	**0.21**		mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	**1.84**		mg/L	0.20	0.03	1	11/20/12	NA	
pH	9040B	**6.89**	X	pH Units	-	-	1	11/20/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**2390**		mg/L	40	40	4	11/21/12	NA	
Sulfate	300.0	**140**		mg/L	0.50	0.18	1	11/20/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 10:40
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-5	**Basis:**	NA
Lab Code:	J1205686-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**5.6**	ug/L	1.0	0.5	1	11/28/12 01:41	11/20/12	
Barium, Total Recoverable	6020	**150**	ug/L	2.0	0.5	1	11/22/12 01:12	11/20/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/22/12 01:12	11/20/12	
Chromium, Total Recoverable	6020	**1.4**	ug/L	1.0	0.2	1	11/22/12 01:12	11/20/12	
Copper, Total Recoverable	6020	**1.0 J**	ug/L	1.0	0.3	1	11/22/12 01:12	11/20/12	
Iron, Total Recoverable	6010B	**28300**	ug/L	100	3	1	11/21/12 21:32	11/20/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/22/12 01:12	11/20/12	
Manganese, Total Recoverable	6010B	**12900**	ug/L	10	3	1	11/21/12 21:33	11/20/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/27/12 12:17	11/26/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/22/12 01:12	11/20/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/22/12 01:12	11/20/12	
Zinc, Total Recoverable	6020	**10.2**	ug/L	5.0	1.6	1	11/22/12 01:12	11/20/12	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 10:40
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-5	**Basis:**	NA
Lab Code:	J1205686-002		

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	11/21/12	NA	
Carbon, Total Organic (TOC)	415.1	**78.9**	mg/L	2.0	0.2	2	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**53**	mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	**2.78**	mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**661**	uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	**0.13 J**	mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	11/20/12	NA	
pH	9040B	**6.13 X**	pH Units	-	-	1	11/20/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**531**	mg/L	10	10	1	11/21/12	NA	
Sulfate	300.0	**170**	mg/L	0.50	0.18	1	11/20/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 12:02
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-3	**Basis:**	NA
Lab Code:	J1205686-003		

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	11/28/12 01:45	11/20/12	
Barium, Total Recoverable	6020	**51.2**	ug/L	2.0	0.5	1	11/22/12 01:17	11/20/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/22/12 01:17	11/20/12	
Chromium, Total Recoverable	6020	**0.5 J**	ug/L	1.0	0.2	1	11/22/12 01:17	11/20/12	
Copper, Total Recoverable	6020	**1.2**	ug/L	1.0	0.3	1	11/22/12 01:17	11/20/12	
Iron, Total Recoverable	6010B	**40 J**	ug/L	100	3	1	11/21/12 21:37	11/20/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/22/12 01:17	11/20/12	
Manganese, Total Recoverable	6010B	**931**	ug/L	10	3	1	11/21/12 21:38	11/20/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/27/12 12:19	11/26/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/22/12 01:17	11/20/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/22/12 01:17	11/20/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	11/22/12 01:17	11/20/12	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 12:02
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-3	**Basis:**	NA
Lab Code:	J1205686-003		

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	11/21/12	NA	
Carbon, Total Organic (TOC)	415.1	**91.1**		mg/L	4.0	0.4	4	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**24**		mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	**50.7**		mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**1860**		uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	**0.23**		mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	**15.5**		mg/L	0.20	0.03	1	11/20/12	NA	
pH	9040B	**6.72**	**X**	pH Units	-	-	1	11/20/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**1220**		mg/L	20	20	2	11/21/12	NA	
Sulfate	300.0	**277**		mg/L	2.5	0.9	5	11/28/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 12:52
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-7	**Basis:**	NA
Lab Code:	J1205686-004		

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	11/28/12 01:48	11/20/12	
Barium, Total Recoverable	6020	**219**	ug/L	2.0	0.5	1	11/22/12 01:22	11/20/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/22/12 01:22	11/20/12	
Chromium, Total Recoverable	6020	**0.9 J**	ug/L	1.0	0.2	1	11/22/12 01:22	11/20/12	
Copper, Total Recoverable	6020	**0.8 J**	ug/L	1.0	0.3	1	11/22/12 01:22	11/20/12	
Iron, Total Recoverable	6010B	**5 J**	ug/L	100	3	1	11/21/12 21:47	11/20/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/22/12 01:22	11/20/12	
Manganese, Total Recoverable	6010B	**20**	ug/L	10	3	1	11/21/12 21:47	11/20/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/27/12 12:21	11/26/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/22/12 01:22	11/20/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/22/12 01:22	11/20/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	11/22/12 01:22	11/20/12	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 12:52
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-7	**Basis:**	NA
Lab Code:	J1205686-004		

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	11/21/12	NA	
Carbon, Total Organic (TOC)	415.1	**171**	mg/L	4.0	0.4	4	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	16 U	mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	**22.7**	mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**2180**	uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	**0.15 J**	mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	**0.33**	mg/L	0.20	0.03	1	11/20/12	NA	
pH	9040B	**7.02 X**	pH Units	-	-	1	11/20/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**1600**	mg/L	40	40	4	11/21/12	NA	
Sulfate	300.0	**37.0**	mg/L	0.50	0.18	1	11/20/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 14:13
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-1	**Basis:**	NA
Lab Code:	J1205686-005		

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	11/28/12 01:52	11/20/12	
Barium, Total Recoverable	6020	**109**	ug/L	2.0	0.5	1	11/22/12 01:38	11/20/12	
Cadmium, Total Recoverable	6020	**0.36 J**	ug/L	0.40	0.10	1	11/22/12 01:38	11/20/12	
Chromium, Total Recoverable	6020	**1.6**	ug/L	1.0	0.2	1	11/22/12 01:38	11/20/12	
Copper, Total Recoverable	6020	**3.3**	ug/L	1.0	0.3	1	11/22/12 01:38	11/20/12	
Iron, Total Recoverable	6010B	**6430**	ug/L	100	3	1	11/21/12 21:55	11/20/12	
Lead, Total Recoverable	6020	**1.29**	ug/L	0.50	0.12	1	11/22/12 01:38	11/20/12	
Manganese, Total Recoverable	6010B	**636**	ug/L	10	3	1	11/21/12 21:56	11/20/12	
Mercury, Total	7470A	**0.02 J**	ug/L	0.10	0.02	1	11/27/12 12:28	11/26/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/22/12 01:38	11/20/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/22/12 01:38	11/20/12	
Zinc, Total Recoverable	6020	**3.1 J**	ug/L	5.0	1.6	1	11/22/12 01:38	11/20/12	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 14:13
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-1	**Basis:**	NA
Lab Code:	J1205686-005		

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	11/21/12	NA	
Carbon, Total Organic (TOC)	415.1	**64.6**		mg/L	1.0	0.09	1	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	16	U	mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	**3.46**		mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**222**		uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	**0.12**	**J**	mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	0.03	U	mg/L	0.20	0.03	1	11/20/12	NA	
pH	9040B	**6.19**	**X**	pH Units	-	-	1	11/20/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**162**		mg/L	10	10	1	11/21/12	NA	
Sulfate	300.0	**16.0**		mg/L	0.50	0.18	1	11/20/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 00:00
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	DUP-1	**Basis:**	NA
Lab Code:	J1205686-006		

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	11/28/12 02:03	11/20/12	
Barium, Total Recoverable	6020	**361**	ug/L	2.0	0.5	1	11/22/12 01:43	11/20/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/22/12 01:43	11/20/12	
Chromium, Total Recoverable	6020	**3.4**	ug/L	1.0	0.2	1	11/22/12 01:43	11/20/12	
Copper, Total Recoverable	6020	**0.8 J**	ug/L	1.0	0.3	1	11/22/12 01:43	11/20/12	
Iron, Total Recoverable	6010B	**190**	ug/L	100	3	1	11/21/12 22:00	11/20/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/22/12 01:43	11/20/12	
Manganese, Total Recoverable	6010B	**1490**	ug/L	10	3	1	11/21/12 22:01	11/20/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/27/12 12:30	11/26/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/22/12 01:43	11/20/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/22/12 01:43	11/20/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	11/22/12 01:43	11/20/12	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 00:00
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	DUP-1	**Basis:**	NA
Lab Code:	J1205686-006		

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**7.9**		mg/L	2.0	2.0	1	11/21/12	NA	*
Carbon, Total Organic (TOC)	415.1	**267**		mg/L	4.0	0.4	4	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**57**		mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	**23.3**		mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**3250**		uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	**0.21**		mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	**1.46**		mg/L	0.20	0.03	1	11/20/12	NA	
pH	9040B	**6.95**	**X**	pH Units	-	-	1	11/20/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**2320**		mg/L	40	40	4	11/21/12	NA	
Sulfate	300.0	**140**		mg/L	0.50	0.18	1	11/20/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1205686-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	11/28/12 01:23	11/20/12	
Barium, Total Recoverable	6020	0.5 U	ug/L	2.0	0.5	1	11/22/12 00:37	11/20/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/22/12 00:37	11/20/12	
Chromium, Total Recoverable	6020	0.2 U	ug/L	1.0	0.2	1	11/22/12 00:37	11/20/12	
Copper, Total Recoverable	6020	0.3 U	ug/L	1.0	0.3	1	11/22/12 00:37	11/20/12	
Iron, Total Recoverable	6010B	3 U	ug/L	100	3	1	11/21/12 21:15	11/20/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/22/12 00:37	11/20/12	
Manganese, Total Recoverable	6010B	3 U	ug/L	10	3	1	11/21/12 21:16	11/20/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/27/12 12:02	11/26/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/22/12 00:37	11/20/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/22/12 00:37	11/20/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	11/22/12 00:37	11/20/12	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1205686-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	11/21/12	NA	
Carbon, Total Organic (TOC)	415.1	**0.2 J**	mg/L	1.0	0.09	1	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	16 U	mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	0.11 U	mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	1.0 U	uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	0.02 U	mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	11/20/12	NA	
Solids, Total Dissolved (TDS)	160.1	10 U	mg/L	10	10	1	11/21/12	NA	
Sulfate	300.0	0.18 U	mg/L	0.50	0.18	1	11/20/12	NA	

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1205686-MB2		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Sulfate	300.0	0.18 U	mg/L	0.50	0.18	1	11/28/12 03:53	

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12
Sample Matrix:	Water	**Date Received:**	11/20/12
		Date Analyzed:	11/22/12 - 11/28/12

Duplicate Matrix Spike Summary
Inorganic Parameters

Sample Name:	MWLG-6	**Units:**	ug/L
Lab Code:	J1205686-001	**Basis:**	NA

			Matrix Spike J1205686-001MS			Duplicate Matrix Spike J1205686-001DMS					
Analyte Name	**Method**	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Arsenic, Total Recoverable	6020	0.5	53.4	50.0	107	53.7	50.0	107	75-125	<1	20
Barium, Total Recoverable	6020	354	455	100	101	454	100	100	75-125	<1	20
Cadmium, Total Recoverable	6020	0.10	19.8	20.0	99	20.5	20.0	103	75-125	3	20
Chromium, Total Recoverable	6020	3.4	48.7	50.0	91	47.8	50.0	89	75-125	2	20
Copper, Total Recoverable	6020	0.8	52.6	50.0	104	53.0	50.0	104	75-125	<1	20
Lead, Total Recoverable	6020	0.12	24.3	25.0	97	24.2	25.0	97	75-125	<1	20
Selenium, Total Recoverable	6020	1.1	96.2	100	96	92.9	100	93	75-125	4	20
Silver, Total Recoverable	6020	0.06	24.6	25.0	98	24.6	25.0	98	75-125	<1	20
Zinc, Total Recoverable	6020	1.6	253	250	101	252	250	101	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.

Client: EarthCon Site Services Inc
Project: IP - Roanoke Rapids/209383.11
Sample Matrix: Water

Service Request:J1205686
Date Analyzed:11/21/12 - 11/28/12

Lab Control Sample Summary
Inorganic Parameters

Units:ug/L
Basis:NA

Lab Control Sample
J1205686-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Total Recoverable	6020	51.7	50.0	103	80-120
Barium, Total Recoverable	6020	102	100	102	80-120
Cadmium, Total Recoverable	6020	21.1	20.0	106	80-120
Chromium, Total Recoverable	6020	52.9	50.0	106	80-120
Copper, Total Recoverable	6020	52.0	50.0	104	80-120
Iron, Total Recoverable	6010B	5190	5000	104	80-120
Lead, Total Recoverable	6020	25.5	25.0	102	80-120
Manganese, Total Recoverable	6010B	516	500	103	80-120
Mercury, Total	7470A	1.11	1.25	88	80-120
Selenium, Total Recoverable	6020	101	100	101	80-120
Silver, Total Recoverable	6020	25.8	25.0	103	80-120
Zinc, Total Recoverable	6020	260	250	104	80-120

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12
Sample Matrix:	Water	**Date Received:**	11/20/12
		Date Analyzed:	11/21/12

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	MWLG-7	**Units:**	mg/L
Lab Code:	J1205686-004	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1205686-004DUP Result	Average	RPD	RPD Limit
Solids, Total Dissolved (TDS)	160.1	40	40	1600	1600	1600	<1	20

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

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

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12
Sample Matrix:	Water	**Date Received:**	11/20/12
		Date Analyzed:	11/27/12

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	MWLG-7	**Units:**	uMHOS/cm
Lab Code:	J1205686-004	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1205686-004DUP Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	120.1	1.0	1.0	2180	2180	2180	<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.

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12
Sample Matrix:	Water	**Date Received:**	11/20/12
		Date Analyzed:	11/20/12 - 11/28/12

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	MWLG-6	**Units:**	mg/L
Lab Code:	J1205686-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1205686-001DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic (TOC)	415.1	4.0	0.4	260	259	259	<1	20
Chloride	300.0	0.50	0.11	23.9	23.7	23.8	<1	20
Fluoride	300.0	0.20	0.02	0.21	0.20	0.205	<1	20
Nitrate as Nitrogen	300.0	0.20	0.03	1.84	1.83	1.84	<1	20
Sulfate	300.0	0.50	0.18	140	140	140	<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.

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12
Sample Matrix:	Water	**Date Received:**	11/20/12
		Date Analyzed:	11/20/12

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	MWLG-6	**Units:**	pH Units
Lab Code:	J1205686-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1205686-001DUP Result	Average	RPD	RPD Limit
pH	9040B	-	-	6.89	6.91	6.90	<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.

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12
Sample Matrix:	Water	**Date Received:**	11/20/12
		Date Analyzed:	11/27/12

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DUP-1	**Units:**	mg/L
Lab Code:	J1205686-006	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1205686-006DUP Result	Average	RPD	RPD Limit
Chemical Oxygen Demand, Total	SM21 5220 D	20	16	57	62	59.3	9 *	5

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

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

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

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12
Sample Matrix:	Water	**Date Received:**	11/20/12
		Date Analyzed:	11/20/12 - 11/28/12

Matrix Spike Summary
Carbon, Total Organic (TOC)

Sample Name:	MWLG-6	**Units:**	mg/L
Lab Code:	J1205686-001	**Basis:**	NA

Matrix Spike
J1205686-001MS

Analyte Name	Method	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC)	415.1	260	333	200	37 *	90-110
Chloride	300.0	23.9	71.2	50.0	95	90-110
Fluoride	300.0	0.21	4.42	5.00	84 *	90-110
Nitrate as Nitrogen	300.0	1.84	6.88	5.00	101	90-110
Sulfate	300.0	140	180	50.0	80 *	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.

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12
Sample Matrix:	Water	**Date Received:**	11/20/12
		Date Analyzed:	11/27/12
		Date Extracted:	11/27/12

Matrix Spike Summary
Chemical Oxygen Demand, Total

Sample Name:	DUP-1	**Units:**	mg/L
Lab Code:	J1205686-006	**Basis:**	NA
Analysis Method:	SM21 5220 D		
Prep Method:	Method		

Matrix Spike
J1205686-006MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Chemical Oxygen Demand, Total	57	570	500	103	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.

Client: EarthCon Site Services Inc
Project: IP - Roanoke Rapids/209383.11
Sample Matrix: Water

Service Request:J1205686
Date Analyzed:11/20/12 - 11/27/12

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
J1205686-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Biochemical Oxygen Demand (BOD)	405.1	208	198	105	84.6-115.4
Carbon, Total Organic (TOC)	415.1	49.0	50.0	98	90-110
Chemical Oxygen Demand, Total	SM21 5220 D	505	500	101	95-105
Chloride	300.0	48.7	50.0	97	90-110
Nitrate as Nitrogen	300.0	4.93	5.00	99	90-110
Solids, Total Dissolved (TDS)	160.1	298	300	99	85-115
Sulfate	300.0	49.4	50.0	99	90-110

Client: EarthCon Site Services Inc
Project: IP - Roanoke Rapids/209383.11
Sample Matrix: Water

Service Request: J1205686
Date Analyzed: 11/27/12

Lab Control Sample Summary
General Chemistry Parameters

Units: uMHOS/cm
Basis: NA

Lab Control Sample
J1205686-LCS2

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

QA/QC Report

Client: EarthCon Site Services Inc
Project: IP - Roanoke Rapids/209383.11
Sample Matrix: Water

Service Request:J1205686
Date Analyzed:11/28/12

Duplicate Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

		Lab Control Sample J1205686-LCS1			Duplicate Lab Control Sample J1205686-DLCS1					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Fluoride	300.0	5.36	5.00	107	5.25	5.00	105	90-110	2	20
Sulfate	300.0	52.0	50.0	104	52.2	50.0	104	90-110	<1	20

ALS Environmental

Cooler Receipt Form

Client: EarthCon Service Request #: J1206686

Project: EP-RR

Cooler received on 11/20/12 and opened on 11/20/12 by SC

COURIER: ALS UPS FEDEX Client Other _____ Airbill # 8001 1935 6221

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)	0.1c								
5	Thermometer ID	IR1								
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
MW26-6	HNO3	met-15-781	2.0	SC 11/20/12 1055
MW26-5	↓	↓	1.0	↓
MW26-3			1.0	
MW26-7			1.0	
DUP-1			2.0	

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

Client approval to run samples if discrepancies noted: Date:

ALS Environmental

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 _____

SR# J1205686
CAS Contract

J1205686 5
EarthCon Site Services Inc
IP - Roanoke Rapids

Project Name: IP- Roanoke Rapids
Project Number: 209383.11
Project Manager: PAT Kelly
Email Address:
Company/Address: EARTHCON Consultants
1880 West ~~West~~ Oak Pkwy Bld 100 Ste 106
Marietta GA 30062
Phone #: 770-973-2100
FAX #:
Sampler's Signature: [signature]
Sampler's Printed Name: Jim McCormick

ANALYSIS REQUESTED (Include Method Num

PRESERVATIVE

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

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	TOC	COD	Metals	Cond, TDS, Cl, F, SO4, NO3, BOD, pH	TOX	REMARKS/ ALTERNATE DESCRIPTION
MWLG-6		11/19/12	902	GW	6	2	1	1	1	1	
MWLG-5			1040		6						
MWLG-3			1202		6						
MWLG-7			1252		6						
MWLG-1			1413		6						
Dup-1					6						

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: 0.1°C CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: [signature]	Signature: FEDEX	Signature: FEDEX	Signature: [signature]	Signature:	Signature:
Printed Name: Jim McCormick	Printed Name:	Printed Name:	Printed Name: Steve Lightsey	Printed Name:	Printed Name:
Firm: EARTHCON	Firm:	Firm:	Firm: ALS	Firm:	Firm:
Date/Time: 11/19/12 1640	Date/Time: 11-19-12 1640	Date/Time:	Date/Time: 11/20/12 0955	Date/Time:	Date/Time:

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

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

Appendix A

Subcontracted Analytical Results

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

LABORATORY REPORT

Client
ALS Environmental
9143 Phillips Hwy, Ste 200
Jacksonville, FL 32256

Order Number
1227948

Project Number
J1205686

Issued
Wednesday, December 26, 2012

Total Number of Pages
4 (excluding C.O.C. and cooler receipt form)

Approved By: Margaret Vaughn
QA Manager

Certifications: A2LA/DOD 0724.01, Alabama 41600, Arkansas 88-0735, California 07256CA, Colorado, Connecticut PH-0105, Delaware, Florida NELAC E87688, Georgia E87688 and 943, Idaho OH00923, Illinois 200061 and Reg.5, Indiana C-OH-13, Kansas E-10347, Kentucky (underground Storage Tank) 3, Kentucky 90146, Louisiana 04061 and LA12004, Maine 2012015, Maryland 339, Massachusetts M-OPH923, Michigan (Reg.5), Minnesota 409711, Montana CERT0099, New Hampshire 2996, New Jersey OH006, New York 11777, North Carolina 39705 and 631, Ohio 4170, Ohio VAP CL0052, Oklahoma 9940, Oregon OH200001, Pennsylvania 68-01335, Rhode Island LA000317, South Carolina 92016001, Tennessee TN04018, Texas T104704466-11-5, Region 5 WG-15J, Region 8 8TMS-L, USDA/APHIS P330-11-00244, Utah OH009232011-1, Vermont VT-87688, Virginia 00440 and 1581, Washington C891, West Virginia 248 and 9957C and E87688, Wisconsin 399013010

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Web Site: www.settek.com

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

2

Sample Summary

Client: ALS Environmental
Order Number: 1227948

Laboratory ID	Client ID	Matrix	Sampling Date
1227948-01	MWLG-6	Liquid	11/19/2012
1227948-02	MWLG-5	Liquid	11/19/2012
1227948-03	MWLG-3	Liquid	11/19/2012
1227948-04	MWLG-7	Liquid	11/19/2012
1227948-05	MWLLG-1	Liquid	11/19/2012
1227948-06	DUP-1	Liquid	11/19/2012

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

3

Report Narrative

Client: ALS Environmental
Order Number: 1227948

No problems were encountered during analysis of this order number, except as noted.

REVISED ID PER CLIENT'S REQUEST.

Data Qualifiers:
B = Analyte found in the method blank
J = Estimated concentration of analyte between MDL (LOD) and Reporting Limit (LOQ)
C = Analyte has been confirmed by another instrument or method
E = Analyte exceeds the upper limit of the calibration curve.
D = Sample or extract was analyzed at a higher dilution
X = User defined data qualifier.
S = Surrogate out of control limits
U = Undetected
a = Not Accredited by NELAC

ND = Non Detected at LOQ
DF = Dilution Factor

Limit Of Quantitation (LOQ) = Laboratory Reporting Limit (not adjusted for dilution factor)
Limit Of Detection (LOD) = Method Detection Limit
Practical Quantitation Limit (PQL) = (same as LOQ)
Method Detection Limit (MDL) = (same as LOD)
Reporting Detection Limit (RDL) = (same as LOD)

Matrices:
A = Air
C = Cream
DW = Drinking Water
L = Liquid
O = Oil
SL = Sludge
SO = Soil
S = Solid
T = Tablet
TC = TCLP Extract
WW = Waste Water
W = Wipe

Estimated uncertainty values are available upon request.

The test results meet the requirements of the NELAC standard, except where noted. The information contained in this analytical report is the sole property of Summit Environmental Technologies, Inc. and that of the client. It cannot be reproduced in any form without the consent of Summit Environmental Technologies, Inc. or the client for which this report was issued. The results contained in this report are only representative of the samples received. Conditions can vary at different times and at different sampling conditions. Summit Environmental Technologies, Inc. is not responsible for use or interpretation of the data included herein.

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

December 26, 2012

Client: ALS Environmental
Address: 9143 Phillips Hwy, Ste 200
Jacksonville, FL 32256

Received: 11/21/2012
Project #: J1205686

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
MWLG-6	1227948-01	19-Nov-12	TOX	ND	mg/L	L	9020	1	0.1	26-Nov-12	VVK
MWLG-5	1227948-02	19-Nov-12	TOX	ND	mg/L	L	9020	1	0.1	26-Nov-12	VVK
MWLG-3	1227948-03	19-Nov-12	TOX	ND	mg/L	L	9020	1	0.1	26-Nov-12	VVK
MWLG-7	1227948-04	19-Nov-12	TOX	ND	mg/L	L	9020	1	0.1	26-Nov-12	VVK
MWLLG-1	1227948-05	19-Nov-12	TOX	ND	mg/L	L	9020	1	0.1	26-Nov-12	VVK
DUP-1	1227948-06	19-Nov-12	TOX	ND	mg/L	L	9020	1	0.1	26-Nov-12	VVK

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Web Site: www.settek.com

TOX QC Report

Client: ALS Environmental
Address: 9143 Phillips Hwy, Ste 200
Jacksonville, FL 32256
Project ID: J1205686

Batch #: TOX112612

ACCURACY

		Blank
BLANK		ppm
TOX		<200

METHOD	LAB PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
9020B	1227948	Blank	11/26/2012	11/26/2012

ACCURACY

	SPK CONC	LCS	LCS	ACP
LABORATORY CONTROL SAMPLE	ug/L	ug/L	% REC	%
TOX	0.20	0.21	105	81-114

METHOD	LAB. PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
9020B	1227948	LCS	11/26/2012	11/26/2012

ACCURACY

	SPIKE	RESULT	ACP
CELL CHECK			
TOX	10 ug/L	9.7	9.0-11.0 ug

METHOD	LAB. PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
9020B	1227948	Cell Check	11/26/2012	11/26/2012

ACCURACY / PRECISION

	SAMP	SPK CONC	MS	MS	MSD	MSD	ACP	RPD	ACP
MATRIX SPIKE/	AMT	ug/L	ug/L	% REC	ppm	% REC	%	%	%RPD
MATRIX SPIKE DUPLICATE									
TOX	ND	0.20	0.23	115	0.20	100	78-116	13.9	0-40

METHOD	LAB. PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
9020B	1227948	1227525-02	11/26/2012	11/26/2012

Memorandum

Date:	January 4, 2013
To:	Pat Kelley
From:	Mary Ann Brookshire
Subject:	Quality Assurance Review
Project:	International Paper - Roanoke Rapids, NC - Low Ground Landfill
Sampling Dates:	November 19, 2012
Project Number:	209383

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 Summit Environmental Technologies, Inc. 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	J1205686-001	X	X
MW-LG-5	J1205686-002	X	X
MW-LG-3	J1205686-003	X	X
MW-LG-7	J1205686-004	X	X
MW-LG-1	J1205686-005	X	X
DUP-1	J1205686-006	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 samples.

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.

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-6/ DUP-1) 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-6	DUP-1	Barium	ug/L	354	361	2.0
		Chromium	ug/L	3.4	3.4	0.0
		Copper	ug/L	0.8	0.8	0.0
		Iron	ug/L	170	190	11.1
		Manganese	ug/L	1,470	1,490	1.4

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 without 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 at a concentration of 0.2 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.

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, TOC, and TOX. The MS recoveries are within the laboratory QC limits with the following exception.

- The TOC recovery for sample MWLG-6 MS is 37 percent, which is below the 90 to 110 percent laboratory QC limit. The TOC result for sample MWLG-6 is qualified as estimated (J).
- The fluoride recovery for sample MWLG-6 MS is 84 percent, which is below the 90 to 110 percent laboratory QC limit. The fluoride result for sample MWLG-6 is qualified as estimated (J).
- The sulfate recovery for sample MWLG-6 MS is 80 percent, which is below the 90 to 110 percent laboratory QC limit. The sulfate result for sample MWLG-6 is qualified as estimated (J).

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.

- Sample MW-LG-3 did not meet the BOD criterion for residual oxygen of at least 1 mg/L. The BOD reporting limit for this sample is elevated.

- The sample dilution series in the BOD analyses of samples MW-LG-1, MW-LG-5 and MW-LG-7 did not meet the oxygen depletion criteria. The BOD reporting limits for these samples are elevated.

2.3.7 Field Duplicates

One field duplicate pair (MW-LG-6/ DUP-1) 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-6	DUP-1	Biochemical Oxygen Demand	mg/L	9.0	7.9	13.0
		Total Organic Carbon	mg/L	260	267	2.7
		Chemical Oxygen Demand	mg/L	56	57	1.8
		Chloride	mg/L	23.9	23.3	2.5
		Conductivity	umhos/com	3,200	3,250	1.6
		Fluoride	mg/L	0.21	0.21	0.0
		Nitrate	mg/L	1.84	1.46	23.0
		pH	S.U.	6.89	6.95	0.9
		Total Dissolved Solids	mg/L	2,390	2,320	3.0
		Sulfate	mg/L	140	140	0.0

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.

- Sample dilution series in the BOD analyses of samples MW-LG-1, MW-LG-5 and MW-LG-7 did not meet the oxygen depletion criteria. BOD results for these samples are qualified as estimated detection limit (UJ).

- Sample MW-LG-3 did not meet the BOD criterion for residual oxygen of at least 1 mg/L. The BOD result for this sample is qualified as estimated detection limit (UJ).

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	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
DUP-1	pH	J	Analyzed beyond the holding time
MW-LG-6	TOC	J	Matrix spike recovery < QC limit
MW-LG-6	Fluoride	J	Matrix spike recovery < QC limit
MW-LG-6	Sulfate	J	Matrix spike recovery < QC limit
MW-LG-5	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	UJ	Seed depletion did not meet acceptance limits
MW-LG-3	BOD	UJ	Residual oxygen did not meet criteria

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 09:02
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-6	**Basis:**	NA
Lab Code:	J1205686-001		

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	11/28/12 01:30	11/20/12	
Barium, Total Recoverable	6020	**354**	ug/L	2.0	0.5	1	11/22/12 00:47	11/20/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/22/12 00:47	11/20/12	
Chromium, Total Recoverable	6020	**3.4**	ug/L	1.0	0.2	1	11/22/12 00:47	11/20/12	
Copper, Total Recoverable	6020	**0.8 J**	ug/L	1.0	0.3	1	11/22/12 00:47	11/20/12	
Iron, Total Recoverable	6010B	**170**	ug/L	100	3	1	11/21/12 21:24	11/20/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/22/12 00:47	11/20/12	
Manganese, Total Recoverable	6010B	**1470**	ug/L	10	3	1	11/21/12 21:24	11/20/12	
Mercury, Total	7470A	0.07 U	ug/L	0.10	0.07	1	11/27/12 12:14	11/26/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/22/12 00:47	11/20/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/22/12 00:47	11/20/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	11/22/12 00:47	11/20/12	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 09:02
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-6	**Basis:**	NA
Lab Code:	J1205686-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**9.0**	mg/L	2.0	2.0	1	11/21/12	NA	
Carbon, Total Organic (TOC)	415.1	**260** J	mg/L	4.0	0.4	4	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**56**	mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	**23.9**	mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**3200**	uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	**0.21** J	mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	**1.84**	mg/L	0.20	0.03	1	11/20/12	NA	
pH	9040B	**6.89** ~~X~~ J	pH Units	-	-	1	11/20/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**2390**	mg/L	40	40	4	11/21/12	NA	
Sulfate	300.0	**140** J	mg/L	0.50	0.18	1	11/20/12	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 10:40
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-5	**Basis:**	NA
Lab Code:	J1205686-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**5.6**		ug/L	1.0	0.5	1	11/28/12 01:41	11/20/12	
Barium, Total Recoverable	6020	**150**		ug/L	2.0	0.5	1	11/22/12 01:12	11/20/12	
Cadmium, Total Recoverable	6020	0.10	U	ug/L	0.40	0.10	1	11/22/12 01:12	11/20/12	
Chromium, Total Recoverable	6020	**1.4**		ug/L	1.0	0.2	1	11/22/12 01:12	11/20/12	
Copper, Total Recoverable	6020	**1.0**	**J**	ug/L	1.0	0.3	1	11/22/12 01:12	11/20/12	
Iron, Total Recoverable	6010B	**28300**		ug/L	100	3	1	11/21/12 21:32	11/20/12	
Lead, Total Recoverable	6020	0.12	U	ug/L	0.50	0.12	1	11/22/12 01:12	11/20/12	
Manganese, Total Recoverable	6010B	**12900**		ug/L	10	3	1	11/21/12 21:33	11/20/12	
Mercury, Total	7470A	0.02	U	ug/L	0.10	0.02	1	11/27/12 12:17	11/26/12	
Selenium, Total Recoverable	6020	1.1	U	ug/L	2.0	1.1	1	11/22/12 01:12	11/20/12	
Silver, Total Recoverable	6020	0.06	U	ug/L	0.50	0.06	1	11/22/12 01:12	11/20/12	
Zinc, Total Recoverable	6020	**10.2**		ug/L	5.0	1.6	1	11/22/12 01:12	11/20/12	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 10:40
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-5	**Basis:**	NA
Lab Code:	J1205686-002		

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	11/21/12	NA	
Carbon, Total Organic (TOC)	415.1	**78.9**	mg/L	2.0	0.2	2	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**53**	mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	**2.78**	mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**661**	uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	**0.13 J**	mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	11/20/12	NA	
pH	9040B	**6.13 X J**	pH Units	-	-	1	11/20/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**531**	mg/L	10	10	1	11/21/12	NA	
Sulfate	300.0	**170**	mg/L	0.50	0.18	1	11/20/12	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 12:02
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-3	**Basis:**	NA
Lab Code:	J1205686-003		

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	11/28/12 01:45	11/20/12	
Barium, Total Recoverable	6020	**51.2**	ug/L	2.0	0.5	1	11/22/12 01:17	11/20/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/22/12 01:17	11/20/12	
Chromium, Total Recoverable	6020	**0.5 J**	ug/L	1.0	0.2	1	11/22/12 01:17	11/20/12	
Copper, Total Recoverable	6020	**1.2**	ug/L	1.0	0.3	1	11/22/12 01:17	11/20/12	
Iron, Total Recoverable	6010B	**40 J**	ug/L	100	3	1	11/21/12 21:37	11/20/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/22/12 01:17	11/20/12	
Manganese, Total Recoverable	6010B	**931**	ug/L	10	3	1	11/21/12 21:38	11/20/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/27/12 12:19	11/26/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/22/12 01:17	11/20/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/22/12 01:17	11/20/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	11/22/12 01:17	11/20/12	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 12:02
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-3	**Basis:**	NA
Lab Code:	J1205686-003		

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	11/21/12	NA	
Carbon, Total Organic (TOC)	415.1	**91.1**	mg/L	4.0	0.4	4	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**24**	mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	**50.7**	mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**1860**	uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	**0.23**	mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	**15.5**	mg/L	0.20	0.03	1	11/20/12	NA	
pH	9040B	**6.72** XJ	pH Units	-	-	1	11/20/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**1220**	mg/L	20	20	2	11/21/12	NA	
Sulfate	300.0	**277**	mg/L	2.5	0.9	5	11/28/12	NA	

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1/4/2013

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 12:52
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-7	**Basis:**	NA
Lab Code:	J1205686-004		

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	11/28/12 01:48	11/20/12	
Barium, Total Recoverable	6020	**219**	ug/L	2.0	0.5	1	11/22/12 01:22	11/20/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/22/12 01:22	11/20/12	
Chromium, Total Recoverable	6020	**0.9 J**	ug/L	1.0	0.2	1	11/22/12 01:22	11/20/12	
Copper, Total Recoverable	6020	**0.8 J**	ug/L	1.0	0.3	1	11/22/12 01:22	11/20/12	
Iron, Total Recoverable	6010B	**5 J**	ug/L	100	3	1	11/21/12 21:47	11/20/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/22/12 01:22	11/20/12	
Manganese, Total Recoverable	6010B	**20**	ug/L	10	3	1	11/21/12 21:47	11/20/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/27/12 12:21	11/26/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/22/12 01:22	11/20/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/22/12 01:22	11/20/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	11/22/12 01:22	11/20/12	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 12:52
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-7	**Basis:**	NA
Lab Code:	J1205686-004		

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	11/21/12	NA	
Carbon, Total Organic (TOC)	415.1	**171**		mg/L	4.0	0.4	4	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	16	U	mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	**22.7**		mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**2180**		uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	**0.15**	**J**	mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	**0.33**		mg/L	0.20	0.03	1	11/20/12	NA	
pH	9040B	**7.02**	~~X~~J	pH Units	-	-	1	11/20/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**1600**		mg/L	40	40	4	11/21/12	NA	
Sulfate	300.0	**37.0**		mg/L	0.50	0.18	1	11/20/12	NA	

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1/4/2013

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 14:13
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-1	**Basis:**	NA
Lab Code:	J1205686-005		

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	11/28/12 01:52	11/20/12	
Barium, Total Recoverable	6020	**109**	ug/L	2.0	0.5	1	11/22/12 01:38	11/20/12	
Cadmium, Total Recoverable	6020	**0.36 J**	ug/L	0.40	0.10	1	11/22/12 01:38	11/20/12	
Chromium, Total Recoverable	6020	**1.6**	ug/L	1.0	0.2	1	11/22/12 01:38	11/20/12	
Copper, Total Recoverable	6020	**3.3**	ug/L	1.0	0.3	1	11/22/12 01:38	11/20/12	
Iron, Total Recoverable	6010B	**6430**	ug/L	100	3	1	11/21/12 21:55	11/20/12	
Lead, Total Recoverable	6020	**1.29**	ug/L	0.50	0.12	1	11/22/12 01:38	11/20/12	
Manganese, Total Recoverable	6010B	**636**	ug/L	10	3	1	11/21/12 21:56	11/20/12	
Mercury, Total	7470A	**0.02 J**	ug/L	0.10	0.02	1	11/27/12 12:28	11/26/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/22/12 01:38	11/20/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/22/12 01:38	11/20/12	
Zinc, Total Recoverable	6020	**3.1 J**	ug/L	5.0	1.6	1	11/22/12 01:38	11/20/12	

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1/4/13

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 14:13
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	MWLG-1	**Basis:**	NA
Lab Code:	J1205686-005		

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 J	mg/L	4.0	4.0	2	11/21/12	NA	
Carbon, Total Organic (TOC)	415.1	**64.6**	mg/L	1.0	0.09	1	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	16 U	mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	**3.46**	mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**222**	uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	**0.12 J**	mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	11/20/12	NA	
pH	9040B	**6.19** ~~X~~ J	pH Units	-	-	1	11/20/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**162**	mg/L	10	10	1	11/21/12	NA	
Sulfate	300.0	**16.0**	mg/L	0.50	0.18	1	11/20/12	NA	

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1/4/2013

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 00:00
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	DUP-1	**Basis:**	NA
Lab Code:	J1205686-006		

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	11/28/12 02:03	11/20/12	
Barium, Total Recoverable	6020	**361**	ug/L	2.0	0.5	1	11/22/12 01:43	11/20/12	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/22/12 01:43	11/20/12	
Chromium, Total Recoverable	6020	**3.4**	ug/L	1.0	0.2	1	11/22/12 01:43	11/20/12	
Copper, Total Recoverable	6020	**0.8 J**	ug/L	1.0	0.3	1	11/22/12 01:43	11/20/12	
Iron, Total Recoverable	6010B	**190**	ug/L	100	3	1	11/21/12 22:00	11/20/12	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/22/12 01:43	11/20/12	
Manganese, Total Recoverable	6010B	**1490**	ug/L	10	3	1	11/21/12 22:01	11/20/12	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/27/12 12:30	11/26/12	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/22/12 01:43	11/20/12	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/22/12 01:43	11/20/12	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	11/22/12 01:43	11/20/12	

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1/4/13

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1205686
Project:	IP - Roanoke Rapids/209383.11	**Date Collected:**	11/19/12 00:00
Sample Matrix:	Water	**Date Received:**	11/20/12 09:55
Sample Name:	DUP-1	**Basis:**	NA
Lab Code:	J1205686-006		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**7.9**	mg/L	2.0	2.0	1	11/21/12	NA	*
Carbon, Total Organic (TOC)	415.1	**267**	mg/L	4.0	0.4	4	11/27/12	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**57**	mg/L	20	16	1	11/27/12	11/27/12	
Chloride	300.0	**23.3**	mg/L	0.50	0.11	1	11/20/12	NA	
Conductivity at 25 Degrees Celsius	120.1	**3250**	uMHOS/cm	1.0	1.0	1	11/27/12	NA	
Fluoride	300.0	**0.21**	mg/L	0.20	0.02	1	11/28/12	NA	
Nitrate as Nitrogen	300.0	**1.46**	mg/L	0.20	0.03	1	11/20/12	NA	
pH	9040B	**6.95** XJ	pH Units	-	-	1	11/20/12	NA	H
Solids, Total Dissolved (TDS)	160.1	**2320**	mg/L	40	40	4	11/21/12	NA	
Sulfate	300.0	**140**	mg/L	0.50	0.18	1	11/20/12	NA	

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SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

December 26, 2012

Client: ALS Environmental
Address: 9143 Phillips Hwy, Ste 200
Jacksonville, FL 32256

Received: 11/21/2012
Project #: J1205686

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
MWLG-6	1227948-01	19-Nov-12	TOX	ND	mg/L	L	9020	1	0.1	26-Nov-12	VVK
MWLG-5	1227948-02	19-Nov-12	TOX	ND	mg/L	L	9020	1	0.1	26-Nov-12	VVK
MWLG-3	1227948-03	19-Nov-12	TOX	ND	mg/L	L	9020	1	0.1	26-Nov-12	VVK
MWLG-7	1227948-04	19-Nov-12	TOX	ND	mg/L	L	9020	1	0.1	26-Nov-12	VVK
MWLLG-1	1227948-05	19-Nov-12	TOX	ND	mg/L	L	9020	1	0.1	26-Nov-12	VVK
DUP-1	1227948-06	19-Nov-12	TOX	ND	mg/L	L	9020	1	0.1	26-Nov-12	VVK

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