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March 4, 2014

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
EarthCon Consultants, P.C. Project No. 25.20090383.14

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 2013 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 2013 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 sampling those wells in general accordance with low flow purging and sampling EPA Operating Procedures. 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 and have been compared to applicable 15A NCAC 02L.0202 (NC 2L) Groundwater Standards. The following bullet points summarize the results of this comparison.

- The total dissolved solids (TDS) results from four wells MW-LG3 (1,360 mg/L), MW-LG5 (580 mg/L), MW-LG6 (2,240 mg/L) and MW-LG7 (1,770 mg/L) exceeded the NC 2L standard of 500 mg/L.
- The total iron results from three wells MW-LG1 (15,200 ug/L), MW-LG5 (20,300 ug/L) and MW-LG6 (880 ug/L) exceeded the NC 2L standard of 300 ug/L.
- The total manganese results from the five wells MW-LG1 (1,760 ug/L), MW-LG3 (2,520 ug/L), MW-LG5 (12,900 ug/L), MW-LG6 (1,110 ug/L) and MW-LG7 (518 ug/L) exceeded the NC 2L standard of 50 ug/L.
- The nitrate as nitrogen result from one well MW-LG3 (34.0 mg/L) exceeded the NC 2L standard of 10 mg/L.

The EarthCon Quality Assurance Review of the laboratory data is attached. The following sample results were qualified during the review and are noted on the attached NC Solid Waste Section Summary Table:

- Total zinc was detected in the method blank. The associated sample concentrations less than the action level and greater than the reporting limit were qualified as undetected at the reported value. In addition, the associated sample concentrations less than the action level and less than the reporting limit are qualified as undetected at the reporting limit.
- Field duplicate RPD values less than 35 are considered acceptable precision for water samples. The total chromium and lead RPD values for the field duplicate pair (MW-LG-1/DUP-1) were above criteria at 100 and 54, respectively. The total chromium and lead results of both samples (MW-LG1 and DUP-1) were qualified as estimated.

The TDS, iron and manganese constituent concentrations, including those detected above the NC 2L groundwater standards, are reported within previous historic ranges that have been established for the Site wells. The detection of nitrate as nitrogen at a concentration of 34.0 mg/L in the groundwater sample collected from MW-LG3 is within the range of 0.79 mg/L to 36.3 mg/L that was established when nitrate as nitrogen was initially detected above the NC 2L standard in well MW-LG3 in 2003.

In previous correspondence with International Paper, the NC 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 the undersigned at 770-973-2100.

Sincerely,

Peter Ramsey, PG
Project Manager

Russell K. Schlecht, PE
Principal Engineer

cc: Brent Sasser, International Paper

Attachments:
- NC Environmental Monitoring Report Form
- 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).
- 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: Peter E. Ramsey Phone: 770-973-2100 ext. 2882

E-mail: pramsey@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, 2013

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 — 770-973-2100 ext. 2882

Facility Representative Name (Print) — Title — (Area Code) Telephone Number

Peter E. Ramsey — 3/4/14

Signature — Date

Affix NC Licensed/ Professional Geologist Seal

NORTH CAROLINA LICENSED SEAL 2107 GEOLOGIST PETER E. RAMSEY

1880 West Oak Pkwy, Bldg. 100, Suite 106, Marietta, GA 30062

Facility Representative Address

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

NC Solid Waste Section Summary Table
International Paper Low Ground Landfill
Roanoke Rapids, North Carolina
Samples Collected on 11/19/13 by EarthCon Consultants, PC
Prepared by DME 01/27/14 and Checked by PER 03/04/14

FACILITY PERMIT	WELL ID	CAS Number	SWS ID	PARAMETER	RESULT	UNITS	QUALIFIER	METHOD	MDL	MRL	SWSL	DILUTION FACTOR	COLLECT DATE	EXTRACTION DATE	ANALYSIS DATE	NC LABORATORY CERTIFICATION NUMBER
42-03	4203-LG1	7440-38-2	14	Arsenic, Total	0.5	ug/L	UJ	6020	0.5	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG1	7440-39-3	15	Barium, Total	212	ug/L		6020	0.5	2		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG1		316	Biochemical Oxygen Demand (BOD)	4000	ug/L	U	405.1	4000	4000		2	11/19/2013		11/21/2013	527
42-03	4203-LG1	7440-43-9	34	Cadmium, Total	0.1	ug/L	U	6020	0.1	0.4		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG1	7440-44-0	357	Carbon, Total Organic (TOC)	5600	ug/L		415.1	90	1000		1	11/19/2013		11/22/2013	527
42-03	4203-LG1		317	Chemical Oxygen Demand (COD)	18000	ug/L	J	SM21 5220 D	16000	20000		1	11/19/2013	12/03/2013	12/03/2013	527
42-03	4203-LG1	16887-00-6	301	Chloride	12100	ug/L		300	110	500		1	11/19/2013		11/21/2013	527
42-03	4203-LG1	7440-47-3	51	Chromium, Total	0.3	ug/L	J	6020	0.2	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG1		324	Conductivity at 25 Degrees Celsius	612	uMHOS/cm		120.1	1	1		1	11/19/2013		12/03/2013	527
42-03	4203-LG1	7440-50-8	54	Copper, Total	1.6	ug/L		6020	0.3	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG1	16984-48-8	312	Fluoride	200	ug/L		300	20	200		1	11/19/2013		11/21/2013	527
42-03	4203-LG1	7439-89-6	340	Iron, Total	15200	ug/L		6010B	3	100		1	11/19/2013	11/21/2013	11/21/2013	527
42-03	4203-LG1	7439-92-1	131	Lead, Total	0.6	ug/L	J	6020	0.12	0.5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG1	7439-96-5	342	Manganese, Total	1760	ug/L		6010B	3	10		1	11/19/2013	11/21/2013	11/21/2013	527
42-03	4203-LG1	7439-97-6	132	Mercury, Total	0.02	ug/L	U	7470A	0.02	0.1		1	11/19/2013	11/21/2013	11/22/2013	527
42-03	4203-LG1	14797-55-8	303	Nitrate as Nitrogen	30	ug/L	U	300	30	200		1	11/19/2013		11/21/2013	527
42-03	4203-LG1	12408-02-5	321	pH	6.43	PH	J	SM 4500-H+ B				1	11/19/2013		11/20/2013	527
42-03	4203-LG1	7782-49-2	183	Selenium, Total	1.1	ug/L	U	6020	1.1	2		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG1	7440-22-4	184	Silver, Total	0.06	ug/L	U	6020	0.06	0.5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG1		311	Solids, Total Dissolved (TDS)	391000	ug/L		160.1	10000	10000		1	11/19/2013		11/21/2013	527
42-03	4203-LG1	14808-79-8	315	Sulfate	1680	ug/L		300	180	500		1	11/19/2013		11/21/2013	527
42-03	4203-LG1	7440-66-6	213	Zinc, Total	5	ug/L	U	6020	1.6	5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG1		396	Total Organic Halides (TOX)	100	ug/L	U	9020		100		1	11/19/2013		11/27/2013	527
42-03	4203-LG3	7440-38-2	14	Arsenic, Total	0.5	ug/L	U	6020	0.5	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG3	7440-39-3	15	Barium, Total	66.1	ug/L		6020	0.5	2		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG3		316	Biochemical Oxygen Demand (BOD)	4000	ug/L	U	405.1	4000	4000		2	11/19/2013		11/21/2013	527
42-03	4203-LG3	7440-43-9	34	Cadmium, Total	0.1	ug/L	U	6020	0.1	0.4		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG3	7440-44-0	357	Carbon, Total Organic (TOC)	7500	ug/L		415.1	90	1000		1	11/19/2013		11/22/2013	527
42-03	4203-LG3		317	Chemical Oxygen Demand (COD)	29000	ug/L		SM21 5220 D	16000	20000		1	11/19/2013	12/03/2013	12/03/2013	527
42-03	4203-LG3	16887-00-6	301	Chloride	40300	ug/L		300	110	500		1	11/19/2013		11/21/2013	527
42-03	4203-LG3	7440-47-3	51	Chromium, Total	0.2	ug/L	U	6020	0.2	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG3		324	Conductivity at 25 Degrees Celsius	1970	uMHOS/cm		120.1	1	1		1	11/19/2013		12/03/2013	527
42-03	4203-LG3	7440-50-8	54	Copper, Total	0.8	ug/L	J	6020	0.3	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG3	16984-48-8	312	Fluoride	270	ug/L		300	20	200		1	11/19/2013		11/21/2013	527
42-03	4203-LG3	7439-89-6	340	Iron, Total	7	ug/L	J	6010B	3	100		1	11/19/2013	11/21/2013	11/21/2013	527
42-03	4203-LG3	7439-92-1	131	Lead, Total	0.12	ug/L	U	6020	0.12	0.5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG3	7439-96-5	342	Manganese, Total	2520	ug/L		6010B	3	10		1	11/19/2013	11/21/2013	11/21/2013	527
42-03	4203-LG3	7439-97-6	132	Mercury, Total	0.02	ug/L	U	7470A	0.02	0.1		1	11/19/2013	11/21/2013	11/22/2013	527
42-03	4203-LG3	14797-55-8	303	Nitrate as Nitrogen	34000	ug/L		300	300	2000		10	11/19/2013		11/21/2013	527
42-03	4203-LG3	12408-02-5	321	pH	6.57	PH	J	SM 4500-H+ B				1	11/19/2013		11/20/2013	527
42-03	4203-LG3	7782-49-2	183	Selenium, Total	1.7	ug/L	J	6020	1.1	2		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG3	7440-22-4	184	Silver, Total	0.06	ug/L	U	6020	0.06	0.5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG3		311	Solids, Total Dissolved (TDS)	1360000	ug/L		160.1	20000	20000		2	11/19/2013		11/21/2013	527
42-03	4203-LG3	14808-79-8	315	Sulfate	228000	ug/L		300	1800	5000		10	11/19/2013		11/21/2013	527
42-03	4203-LG3	7440-66-6	213	Zinc, Total	5	ug/L	U	6020	1.6	5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG3		396	Total Organic Halides (TOX)	100	ug/L	U	9020		100		1	11/19/2013		11/27/2013	527
42-03	4203-LG5	7440-38-2	14	Arsenic, Total	1.5	ug/L		6020	0.5	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG5	7440-39-3	15	Barium, Total	141	ug/L		6020	0.5	2		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG5		316	Biochemical Oxygen Demand (BOD)	4000	ug/L	U	405.1	4000	4000		2	11/19/2013		11/21/2013	527
42-03	4203-LG5	7440-43-9	34	Cadmium, Total	0.13	ug/L	J	6020	0.1	0.4		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG5	7440-44-0	357	Carbon, Total Organic (TOC)	8900	ug/L		415.1	90	1000		1	11/19/2013		11/22/2013	527
42-03	4203-LG5		317	Chemical Oxygen Demand (COD)	45000	ug/L		SM21 5220 D	16000	20000		1	11/19/2013	12/03/2013	12/03/2013	527
42-03	4203-LG5	16887-00-6	301	Chloride	2960	ug/L		300	110	500		1	11/19/2013		11/20/2013	527
42-03	4203-LG5	7440-47-3	51	Chromium, Total	0.9	ug/L	J	6020	0.2	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG5		324	Conductivity at 25 Degrees Celsius	719	uMHOS/cm		120.1	1	1		1	11/19/2013		12/03/2013	527
42-03	4203-LG5	7440-50-8	54	Copper, Total	2.6	ug/L		6020	0.3	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG5	16984-48-8	312	Fluoride	190	ug/L	J	300	20	200		1	11/19/2013		11/20/2013	527
42-03	4203-LG5	7439-89-6	340	Iron, Total	20300	ug/L		6010B	3	100		1	11/19/2013	11/21/2013	11/21/2013	527
42-03	4203-LG5	7439-92-1	131	Lead, Total	0.12	ug/L	U	6020	0.12	0.5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG5	7439-96-5	342	Manganese, Total	12900	ug/L		6010B	3	10		1	11/19/2013	11/21/2013	11/21/2013	527
42-03	4203-LG5	7439-97-6	132	Mercury, Total	0.02	ug/L	U	7470A	0.02	0.1		1	11/19/2013	11/21/2013	11/22/2013	527
42-03	4203-LG5	14797-55-8	303	Nitrate as Nitrogen	30	ug/L	U	300	30	200		1	11/19/2013		11/20/2013	527
42-03	4203-LG5	12408-02-5	321	pH	6.17	PH	J	SM 4500-H+ B				1	11/19/2013		11/20/2013	527
42-03	4203-LG5	7782-49-2	183	Selenium, Total	1.1	ug/L	U	6020	1.1	2		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG5	7440-22-4	184	Silver, Total	0.06	ug/L	U	6020	0.06	0.5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG5		311	Solids, Total Dissolved (TDS)	580000	ug/L		160.1	10000	10000		1	11/19/2013		11/21/2013	527
42-03	4203-LG5	14808-79-8	315	Sulfate	206000	ug/L		300	400	1000		2	11/19/2013		11/20/2013	527
42-03	4203-LG5	7440-66-6	213	Zinc, Total	8.4	ug/L	U	6020	1.6	5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG5		396	Total Organic Halides (TOX)	100	ug/L	U	9020		100		1	11/19/2013		11/27/2013	527
42-03	4203-LG6	7440-38-2	14	Arsenic, Total	0.5	ug/L	U	6020	0.5	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG6	7440-39-3	15	Barium, Total	613	ug/L		6020	0.5	2		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG6		316	Biochemical Oxygen Demand (BOD)	3800	ug/L		405.1	2000	2000		1	11/19/2013		11/21/2013	527
42-03	4203-LG6	7440-43-9	34	Cadmium, Total	0.1	ug/L	U	6020	0.1	0.4		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG6	7440-44-0	357	Carbon, Total Organic (TOC)	16600	ug/L		415.1	90	1000		1	11/19/2013		11/22/2013	527
42-03	4203-LG6		317	Chemical Oxygen Demand (COD)	45000	ug/L		SM21 5220 D	16000	20000		1	11/19/2013	12/03/2013	12/04/2013	527
42-03	4203-LG6	16887-00-6	301	Chloride	18400	ug/L		300	110	500		1	11/19/2013		11/20/2013	527
42-03	4203-LG6	7440-47-3	51	Chromium, Total	3.3	ug/L		6020	0.2	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG6		324	Conductivity at 25 Degrees Celsius	3170	uMHOS/cm		120.1	1	1		1	11/19/2013		12/03/2013	527
42-03	4203-LG6	7440-50-8	54	Copper, Total	0.6	ug/L	J	6020	0.3	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG6	16984-48-8	312	Fluoride	300	ug/L		300	20	200		1	11/19/2013		11/20/2013	527
42-03	4203-LG6	7439-89-6	340	Iron, Total	880	ug/L		6010B	3	100		1	11/19/2013	11/21/2013	11/21/2013	527
42-03	4203-LG6	7439-92-1	131	Lead, Total	0.12	ug/L	U	6020	0.12	0.5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG6	7439-96-5	342	Manganese, Total	1110	ug/L		6010B	3	10		1	11/19/2013	11/21/2013	11/21/2013	527
42-03	4203-LG6	7439-97-6	132	Mercury, Total	0.02	ug/L	U	7470A	0.02	0.1		1	11/19/2013	11/21/2013	11/22/2013	527
42-03	4203-LG6	14797-55-8	303	Nitrate as Nitrogen	430	ug/L		300	30	200		1	11/19/2013		11/20/2013	527
42-03	4203-LG6	12408-02-5	321	pH	6.94	PH	J	SM 4500-H+ B				1	11/19/2013		11/20/2013	527
42-03	4203-LG6	7782-49-2	183	Selenium, Total	1.1	ug/L	U	6020	1.1	2		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG6	7440-22-4	184	Silver, Total	0.06	ug/L	U	6020	0.06	0.5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG6		311	Solids, Total Dissolved (TDS)	2240000	ug/L		160.1	40000	40000		4	11/19/2013		11/21/2013	527
42-03	4203-LG6	14808-79-8	315	Sulfate	117000	ug/L		300	180	500		1	11/19/2013		11/20/2013	527
42-03	4203-LG6	7440-66-6	213	Zinc, Total	5	ug/L	U	6020	1.6	5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG6		396	Total Organic Halides (TOX)	100	ug/L	U	9020		100		1	11/19/2013		11/27/2013	527
42-03	4203-LG7	7440-38-2	14	Arsenic, Total	0.5	ug/L	U	6020	0.5	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG7	7440-39-3	15	Barium, Total	293	ug/L		6020	0.5	2		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG7		316	Biochemical Oxygen Demand (BOD)	4000	ug/L	U	405.1	4000	4000		2	11/19/2013		11/21/2013	527
42-03	4203-LG7	7440-43-9	34	Cadmium, Total	0.1	ug/L	U	6020	0.1	0.4		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG7	7440-44-0	357	Carbon, Total Organic (TOC)	7400	ug/L		415.1	90	1000		1	11/19/2013		11/22/2013	527
42-03	4203-LG7		317	Chemical Oxygen Demand (COD)	25000	ug/L		SM21 5220 D	16000	20000		1	11/19/2013	12/03/2013	12/03/2013	527
42-03	4203-LG7	16887-00-6	301	Chloride	35100	ug/L		300	110	500		1	11/19/2013		11/21/2013	527
42-03	4203-LG7	7440-47-3	51	Chromium, Total	0.2	ug/L	U	6020	0.2	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG7		324	Conductivity at 25 Degrees Celsius	2480	uMHOS/cm		120.1	1	1		1	11/19/2013		12/03/2013	527
42-03	4203-LG7	7440-50-8	54	Copper, Total	1.2	ug/L		6020	0.3	1		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG7	16984-48-8	312	Fluoride	230	ug/L		300	20	200		1	11/19/2013		11/21/2013	527
42-03	4203-LG7	7439-89-6	340	Iron, Total	50	ug/L	J	6010B	3	100		1	11/19/2013	11/21/2013	11/21/2013	527
42-03	4203-LG7	7439-92-1	131	Lead, Total	0.12	ug/L	U	6020	0.12	0.5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG7	7439-96-5	342	Manganese, Total	518	ug/L		6010B	3	10		1	11/19/2013	11/21/2013	11/21/2013	527
42-03	4203-LG7	7439-97-6	132	Mercury, Total	0.02	ug/L	U	7470A	0.02	0.1		1	11/19/2013	11/21/2013	11/22/2013	527
42-03	4203-LG7	14797-55-8	303	Nitrate as Nitrogen	1070	ug/L		300	30	200		1	11/19/2013		11/21/2013	527
42-03	4203-LG7	12408-02-5	321	pH	6.95	PH	J	SM 4500-H+ B				1	11/19/2013		11/20/2013	527
42-03	4203-LG7	7782-49-2	183	Selenium, Total	1.1	ug/L	U	6020	1.1	2		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG7	7440-22-4	184	Silver, Total	0.06	ug/L	U	6020	0.06	0.5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG7		311	Solids, Total Dissolved (TDS)	1770000	ug/L		160.1	20000	20000		2	11/19/2013		11/21/2013	527
42-03	4203-LG7	14808-79-8	315	Sulfate	204000	ug/L		300	1800	5000		10	11/19/2013		11/21/2013	527
42-03	4203-LG7	7440-66-6	213	Zinc, Total	5	ug/L	U	6020	1.6	5		1	11/19/2013	11/25/2013	11/26/2013	527
42-03	4203-LG7		396	Total Organic Halides (TOX)	100	ug/L	U	9020		100		1	11/19/2013		11/27/2013	527

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Groundwater Sampling Record

WELL No. LG-1	PROJECT # 25.2009030.3.13	LOCATION Roanoke Rapids	DATE 11/19/13
SAMPLE No.	PROJECT NAME IP Roanoke Rapids	FIELD PERSONNEL/COMPANY K. Davis, J. Hughes	
SAMPLE TIME: 1355	SITE	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
Casing Volume (liters/ft) for: 2" = 0.617; 4" = 2.47; 6" = 5.56

Depth to Water (feet): 9.09
Depth of Well (feet): 16.36
Water Column (feet): 7.27
Casing Volume (gallons): 1.20
Calculated Purge Volume (gallons): 3.6
Actual Purge Volume (gallons): 2.4

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 WL

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	Dissolved Oxygen (mg/L)	ORP (mV)	CONDUCTIVITY (µs/cm)	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
1243	0							PURGE START
1247	—	16.02	6.51	1.76	-24.0	516	66.06	9.76
1255	0.5	16.44	6.28	0.27	-35.2	415	27.85	10.40
1305	0.8	16.45	6.21	0.23	-37.2	322	27.85	11.02
1315	1.25	16.18	6.15	0.26	-36.9	295	12.85	11.69
1325	1.75	16.20	6.17	0.28	-39.2	359	9.63	12.22
1335	2.25	16.26	6.21	0.18	-44.3	473	6.86	12.71

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	11/19/13
Turbidity	HF Scientific	20000	11/19/13

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/	PRESERVATIVES	QA REMARKS
	TOC	40ml Amber	HCl	
	COD	125ml HDPE	H_2SO_4	
	TOX	250ml Glass	H_2SO_4	
	Metals	500ml HDPE	HNO_3	
	Various	500ml HDPE	—	

Dup-1 Collected Here

Start Purge - 1243
End Purge - 1335
Sample - 1355

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Groundwater Sampling Record

WELL No. LG-3	PROJECT # 25.20090303.13	LOCATION Roanoke Rapids, NC	DATE 11/19/13
SAMPLE No.	PROJECT NAME IP Roanoke Rapids	FIELD PERSONNEL/COMPANY R. Davis, J. Hughes	
SAMPLE TIME: 1120	SITE	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
Casing Volume (liters/ft) for: 2" = 0.617; 4" = 2.47; 6" = 5.56

Depth to Water (feet): 7.51
Depth of Well (feet): 19.83
Water Column (feet): 12.32
Casing Volume (gallons): 2.01
Calculated Purge Volume (gallons): 6.03
Actual Purge Volume (gallons): 3.20

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 WL

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	Dissolved Oxygen (mg/L)	ORP (mV)	CONDUCTIVITY (µs/cm)	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
1013	0							PURGE START
1015	—	17.66	6.37	1.74	17.2	1882	1.92	8.12
1025	0.7	17.94	6.34	0.31	28.7	1912	0.0	8.66
1035	1.5	18.01	6.37	0.44	31.9	1910	0.0	8.95
1045	1.75	18.00	6.45	0.08	33.8	1878	0.0	9.13
1055	2.3	17.94	6.47	0.90	38.2	1894	0.99	9.31
1105	2.9	17.89	6.46	0.69	42.3	1913	0.00	9.46

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	11/19/13
Turbidity	HF Scientific	20000	11/19/13
Peri pump	Geopump		

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/	PRESERVATIVES	QA REMARKS
	TOC	40ml Amber	HCl	
	COD	125ml HDPE	H_2SO_4	
	TOX	250ml Glass	H_2SO_4	
	Metals	500ml HDPE	HNO_3	
	Various	500ml HDPE	—	

Start Purge - 1013
End Purge - 1104
Sample - 1120

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Groundwater Sampling Record

WELL No. LG-5	PROJECT #: 25.2009 03 03.13	LOCATION Roanoke Rapids, NC	DATE 11/19/13
SAMPLE No.	PROJECT NAME IP Roanoke Rapids	FIELD PERSONNEL/COMPANY K. Davis, J. Hughes	
SAMPLE TIME: 0955	SITE	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: ~~(in² h)(7.48 gal/ft³)~~
Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47
Casing Volume (liters/ft) for: 2" = 0.617; 4" = 2.47; 6" = 5.56

Depth to Water (feet): 11.39
Depth of Well (feet): 18.98
Water Column (feet): 7.59
Casing Volume (gallons): 1.23
Calculated Purge Volume (gallons): 3.71
Actual Purge Volume (gallons): 1.80

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) WL

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	Dissolved Oxygen (mg/L)	ORP (mV)	CONDUCTIVITY (µs/cm)	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
0903	0							PURGE START
0906	—	17.83	6.46	3.57	-63.1	850	2.49	12.07
0915	0.5	18.41	6.12	0.47	-46.5	792	1.46	12.87
0925	0.9	18.67	6.08	0.31	-41.5	772	4.52	13.53
0935	1.3	18.88	6.06	0.26	-37.1	770	4.28	14.23
0945	1.7	18.59	6.03	0.25	-32.4	777	5.76	14.69

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	11/19/13
Turbidity	HF Scientific	2000	11/19/13
Peri pump	Geopump		

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/	PRESERVATIVES	QA REMARKS
	TOC	40ml amber	HCl	
	COD	125ml HDPE	H_2SO_4	
	TOX	250ml Glass	H_2SO_4	
	Metals	500ml HDPE	HNO_3	
	Various	500ml HDPE	—	

Start purge - 0903
End purge - 0945
Sample - 0955

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Groundwater Sampling Record

WELL No. LG-6	PROJECT # 25.2009 0383.13	LOCATION Roanoke Rapids, NC	DATE 11/19/13
SAMPLE No.	PROJECT NAME IP Roanoke Rapids	FIELD PERSONNEL/COMPANY R. Davis, J. Hughes	
SAMPLE TIME: 0840	SITE	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
Casing Volume (liters/ft) for: 2" = 0.617; 4" = 2.47; 6" = 5.56

Depth to Water (feet): 9.41
Depth of Well (feet): 18.72
Water Column (feet): 9.31
Casing Volume (gallons): 1.51
Calculated Purge Volume (gallons): 4.6
Actual Purge Volume (gallons): 2.25

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) WL

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	Dissolved Oxygen (mg/L)	ORP (mV)	CONDUCTIVITY (µs/cm)	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
0747	0							PURGE START
0751	—	17.08	6.88	2.35	-10.5	3205	6.56	10.65
0800	0.6	18.58	6.87	0.44	-61.4	31.78	1.98	11.73
0810	1.1	18.82	6.85	0.29	-78.1	3150	1.61	12.30
0820	1.5	18.92	6.85	0.49	-86.2	3134	0.69	12.62
0830	2.0	18.82	6.85	0.38	-90.2	3137	0.68	12.96

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
WaterQuality	YSI	556	11/19/13
Turbidity	HF Scientific	2000	11/19/13
Peri pump	Geopump		

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/	PRESERVATIVES	QA REMARKS
	TOC	40ml Amber	HCl	
	COD	125ml HDPE	H_2SO_4	
	TOX	250ml Glass	H_2SO_4	
	METALS	500ml HDPE	HNO_3	
	VARIOUS	500ml HDPE	—	

Start purge - 0747
End purge - 0831
Sample - 0840

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Groundwater Sampling Record

WELL No. GG-7	PROJECT # 25.20090383.13	LOCATION Roanoke Rapids, NC	DATE 11/19/13
SAMPLE No.	PROJECT NAME IP Roanoke Rapids	FIELD PERSONNEL/COMPANY E. Davis, J. Hughes	
SAMPLE TIME: 1225	SITE	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
Casing Volume (liters/ft) for: 2" = 0.617; 4" = 2.47; 6" = 5.56

Depth to Water (feet): 10.27
Depth of Well (feet): 16.85
Water Column (feet): 6.58
Casing Volume (gallons): 1.07
Calculated Purge Volume (gallons): 3.22
Actual Purge Volume (gallons): 2.25

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 4L

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	Dissolved Oxygen (mg/L)	ORP (mV)	CONDUCTIVITY (µs/cm)	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
1134	0							PURGE START
1137	—	16.38	6.89	2.32	58.8	2447	0.0	10.53
1145	0.5	16.31	6.81	1.12	58.4	2464	0.0	10.54
1155	1.0	16.31	6.81	1.26	59.8	2472	0.0	10.59
1205	1.5	16.20	6.83	1.49	62.7	2490	0.0	10.62
1215	2.0	16.17	6.83	1.61	65.5	2505	0.0	10.62

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	11/19/13
Turbidity	HF Scientific	20000	11/19/13
Peri pump	Geopump		

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/	PRESERVATIVES	QA REMARKS
	TOC	40ml Amber	HCl	
	COD	125ml HDPE	H_2SO_4	
	TOX	250ml Glass	H_2SO_4	
	Metals	500ml HDPE	HNO_3	
	Various	500ml HDPE	—	

Start purge - 1134
End purge - 1214
Sample - 1225

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

ALS Environmental

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

PAGE 1 OF 1

SR#

CAS Contract

Project Name: IP Roanoke Rapids

Project Number: 25.20090383.13

Project Manager: Peter Ramsey

Email Address: PRamsey@EarthCon.com

Company/Address: EarthCon Consultants, Inc
1880 West Oak Pkwy, Bld 100, Ste 106
Marietta, GA 30062

Phone #: 770-973-2100

FAX #: 770-973-7395

Sampler's Signature:

Sampler's Printed Name: Kevin M Davis

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	TOC	COD	TOX	METALS	VARIOUS										REMARKS/ ALTERNATE DESCRIPTION
PRESERVATIVE						1	3	3	2	0										
LG-6		11/19/13	0840	GW	6	2	1	1	1	1										
LG-5		↓	0955	↓	6	2	1	1	1	1										
LG-3		↓	1120	↓	6	2	1	1	1	1										
LG-7		↓	1225	↓	6	2	1	1	1	1										
LG-1		↓	1355	↓	6	2	1	1	1	1										
Dup-1		↓	—	↓	6	2	1	1	1	1										

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 _____

SPECIAL INSTRUCTIONS/COMMENTS

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
X 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: Kevin M Davis	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm: EarthCon	Firm	Firm	Firm	Firm	Firm
Date/Time: 11/21/13 1630	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

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

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December 13, 2013

Service Request No:J1307034

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, 2013
For your reference, these analyses have been assigned our service request number **J1307034.**

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,

ALS Group USA, Corp. dba ALS Environmental

Jerry Allen
Project Manager

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ALS Group USA, Corp.
dba ALS Environmental

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ALS Environmental

Client: EarthCon Site Services Inc
Project: IP Roanoke Rapids/25.20090383.13
Sample Matrix: Water

Service Request: J1307034
Date Received: 11/20/13

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. 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 ALS Environmental on 11/20/13. 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 dilution water used for the batch analyzed on date did not meet the method guidance for dissolved oxygen depletion of less than 0.2 mg/L. This guidance is used to evaluate the potential for biases. A review of the sample data indicates that the quality is not significantly affected. No further corrective action was appropriate.

Method 405.1 (BOD): The sample dilution series for samples J1307034 (002-006) did not meet the oxygen depletion criterion of at least 2 mg/L. The reported result is based on the highest dilution performed and is therefore the minimum value possible for this sample. 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 J1307034-001 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.

Subcontracted Analytical Parameters:

An aliquot of the samples were delivered to Summit Labs in Cuyahoga Falls, OH for 9020 determination. The certified analytical report has been included in its entirety in Appendix A: Subcontracted Analytical Results.

Revision Notes:

The report was revised to correct the "I" flag for the Zinc result in the method blank to a "J" flag and the QC results were added to the 9020 results.

Approved by _____ Date 12/13/2013

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ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Florida Department of Health	E82502	6/30/2014
North Carolina Department of Environment and Natural Resources	527	12/31/2013
Virginia Environmental Accreditation Program	460191	12/14/2013
Louisiana Department of Environmental Quality	02086	6/30/2014
Georgia Department of Natural Resources	958	6/30/2014
Kentucky Division of Waste Management	63	6/30/2014
South Carolina Department of Health and Environmental Control	96021001	6/30/2014
Texas Commision on Environmental Quality	T104704197-13-5	5/31/2014
Maine Department of Health and Human Services	2011006	2/3/2015
Department of Defense	66206	5/31/2014
Pennsylvania Department of Environmental Protection	68-04835	8/31/2014

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.

Client: EarthCon Site Services Inc **Service Request:**J1307034
Project: IP Roanoke Rapids/25.20090383.13

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
J1307034-001	LG-6	11/19/2013	0840
J1307034-002	LG-5	11/19/2013	0955
J1307034-003	LG-3	11/19/2013	1120
J1307034-004	LG-7	11/19/2013	1225
J1307034-005	LG-1	11/19/2013	1355
J1307034-006	Dup-1	11/19/2013	0000

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 08:40
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-6	**Basis:**	NA
Lab Code:	J1307034-001		

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	11/26/13 22:30	11/25/13	
Barium, Total Recoverable	6020	**613**	ug/L	2.0	0.5	1	11/26/13 22:30	11/25/13	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/26/13 22:30	11/25/13	
Chromium, Total Recoverable	6020	**3.3**	ug/L	1.0	0.2	1	11/26/13 22:30	11/25/13	
Copper, Total Recoverable	6020	**0.6 J**	ug/L	1.0	0.3	1	11/26/13 22:30	11/25/13	
Iron, Total Recoverable	6010B	**880**	ug/L	100	3	1	11/21/13 22:31	11/21/13	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/26/13 22:30	11/25/13	
Manganese, Total Recoverable	6010B	**1110**	ug/L	10	3	1	11/21/13 22:32	11/21/13	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/22/13 14:24	11/21/13	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/26/13 22:30	11/25/13	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/26/13 22:30	11/25/13	
Zinc, Total Recoverable	6020	**1.7 J**	ug/L	5.0	1.6	1	11/26/13 22:30	11/25/13	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 08:40
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-6	**Basis:**	NA
Lab Code:	J1307034-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**3.8**	mg/L	2.0	2.0	1	11/21/13	NA	
Carbon, Total Organic (TOC)	415.1	**16.6**	mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**45**	mg/L	20	16	1	12/04/13	12/03/13	
Chloride	300.0	**18.4**	mg/L	0.50	0.11	1	11/20/13	NA	
Conductivity at 25 Degrees Celsius	120.1	**3170**	uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	**0.30**	mg/L	0.20	0.02	1	11/20/13	NA	
Nitrate as Nitrogen	300.0	**0.43**	mg/L	0.20	0.03	1	11/20/13	NA	
pH	SM 4500-H+ B	**6.94**	pH Units	-	-	1	11/20/13	NA	H
Solids, Total Dissolved (TDS)	160.1	**2240**	mg/L	40	40	4	11/21/13	NA	
Sulfate	300.0	**117**	mg/L	0.50	0.18	1	11/20/13	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 09:55
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-5	**Basis:**	NA
Lab Code:	J1307034-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**1.5**	ug/L	1.0	0.5	1	11/26/13 22:35	11/25/13	
Barium, Total Recoverable	6020	**141**	ug/L	2.0	0.5	1	11/26/13 22:35	11/25/13	
Cadmium, Total Recoverable	6020	**0.13 J**	ug/L	0.40	0.10	1	11/26/13 22:35	11/25/13	
Chromium, Total Recoverable	6020	**0.9 J**	ug/L	1.0	0.2	1	11/26/13 22:35	11/25/13	
Copper, Total Recoverable	6020	**2.6**	ug/L	1.0	0.3	1	11/26/13 22:35	11/25/13	
Iron, Total Recoverable	6010B	**20300**	ug/L	100	3	1	11/21/13 22:40	11/21/13	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/26/13 22:35	11/25/13	
Manganese, Total Recoverable	6010B	**12900**	ug/L	10	3	1	11/21/13 22:41	11/21/13	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/22/13 14:25	11/21/13	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/26/13 22:35	11/25/13	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/26/13 22:35	11/25/13	
Zinc, Total Recoverable	6020	**8.4**	ug/L	5.0	1.6	1	11/26/13 22:35	11/25/13	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 09:55
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-5	**Basis:**	NA
Lab Code:	J1307034-002		

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	11/21/13	NA	
Carbon, Total Organic (TOC)	415.1	**8.9**		mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**45**		mg/L	20	16	1	12/03/13	12/03/13	
Chloride	300.0	**2.96**		mg/L	0.50	0.11	1	11/20/13	NA	
Conductivity at 25 Degrees Celsius	120.1	**719**		uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	**0.19**	**J**	mg/L	0.20	0.02	1	11/20/13	NA	
Nitrate as Nitrogen	300.0	0.03	U	mg/L	0.20	0.03	1	11/20/13	NA	
pH	SM 4500-H+ B	**6.17**		pH Units	-	-	1	11/20/13	NA	H
Solids, Total Dissolved (TDS)	160.1	**580**		mg/L	10	10	1	11/21/13	NA	
Sulfate	300.0	**206**		mg/L	1.0	0.4	2	11/22/13	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 11:20
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-3	**Basis:**	NA
Lab Code:	J1307034-003		

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	11/26/13 22:40	11/25/13	
Barium, Total Recoverable	6020	**66.1**	ug/L	2.0	0.5	1	11/26/13 22:40	11/25/13	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/26/13 22:40	11/25/13	
Chromium, Total Recoverable	6020	0.2 U	ug/L	1.0	0.2	1	11/26/13 22:40	11/25/13	
Copper, Total Recoverable	6020	**0.8 J**	ug/L	1.0	0.3	1	11/26/13 22:40	11/25/13	
Iron, Total Recoverable	6010B	**7 J**	ug/L	100	3	1	11/21/13 22:45	11/21/13	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/26/13 22:40	11/25/13	
Manganese, Total Recoverable	6010B	**2520**	ug/L	10	3	1	11/21/13 22:46	11/21/13	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/22/13 14:26	11/21/13	
Selenium, Total Recoverable	6020	**1.7 J**	ug/L	2.0	1.1	1	11/26/13 22:40	11/25/13	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/26/13 22:40	11/25/13	
Zinc, Total Recoverable	6020	**2.1 J**	ug/L	5.0	1.6	1	11/26/13 22:40	11/25/13	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 11:20
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-3	**Basis:**	NA
Lab Code:	J1307034-003		

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	11/21/13	NA	
Carbon, Total Organic (TOC)	415.1	**7.5**	mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**29**	mg/L	20	16	1	12/03/13	12/03/13	
Chloride	300.0	**40.3**	mg/L	0.50	0.11	1	11/21/13	NA	
Conductivity at 25 Degrees Celsius	120.1	**1970**	uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	**0.27**	mg/L	0.20	0.02	1	11/21/13	NA	
Nitrate as Nitrogen	300.0	**34.0**	mg/L	2.0	0.3	10	11/21/13	NA	
pH	SM 4500-H+ B	**6.57**	pH Units	-	-	1	11/20/13	NA	H
Solids, Total Dissolved (TDS)	160.1	**1360**	mg/L	20	20	2	11/21/13	NA	
Sulfate	300.0	**228**	mg/L	5.0	1.8	10	11/21/13	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 12:25
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-7	**Basis:**	NA
Lab Code:	J1307034-004		

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	11/26/13 22:45	11/25/13	
Barium, Total Recoverable	6020	**293**	ug/L	2.0	0.5	1	11/26/13 22:45	11/25/13	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/26/13 22:45	11/25/13	
Chromium, Total Recoverable	6020	0.2 U	ug/L	1.0	0.2	1	11/26/13 22:45	11/25/13	
Copper, Total Recoverable	6020	**1.2**	ug/L	1.0	0.3	1	11/26/13 22:45	11/25/13	
Iron, Total Recoverable	6010B	**50 J**	ug/L	100	3	1	11/21/13 23:04	11/21/13	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/26/13 22:45	11/25/13	
Manganese, Total Recoverable	6010B	**518**	ug/L	10	3	1	11/21/13 23:05	11/21/13	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/22/13 14:27	11/21/13	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/26/13 22:45	11/25/13	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/26/13 22:45	11/25/13	
Zinc, Total Recoverable	6020	**2.1 J**	ug/L	5.0	1.6	1	11/26/13 22:45	11/25/13	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 12:25
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-7	**Basis:**	NA
Lab Code:	J1307034-004		

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	11/21/13	NA	
Carbon, Total Organic (TOC)	415.1	**7.4**	mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**25**	mg/L	20	16	1	12/03/13	12/03/13	
Chloride	300.0	**35.1**	mg/L	0.50	0.11	1	11/21/13	NA	
Conductivity at 25 Degrees Celsius	120.1	**2480**	uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	**0.23**	mg/L	0.20	0.02	1	11/21/13	NA	
Nitrate as Nitrogen	300.0	**1.07**	mg/L	0.20	0.03	1	11/21/13	NA	
pH	SM 4500-H+ B	**6.95**	pH Units	-	-	1	11/20/13	NA	H
Solids, Total Dissolved (TDS)	160.1	**1770**	mg/L	20	20	2	11/21/13	NA	
Sulfate	300.0	**204**	mg/L	5.0	1.8	10	11/21/13	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 13:55
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-1	**Basis:**	NA
Lab Code:	J1307034-005		

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	11/26/13 22:50	11/25/13	
Barium, Total Recoverable	6020	**212**		ug/L	2.0	0.5	1	11/26/13 22:50	11/25/13	
Cadmium, Total Recoverable	6020	0.10	U	ug/L	0.40	0.10	1	11/26/13 22:50	11/25/13	
Chromium, Total Recoverable	6020	**0.3**	**J**	ug/L	1.0	0.2	1	11/26/13 22:50	11/25/13	
Copper, Total Recoverable	6020	**1.6**		ug/L	1.0	0.3	1	11/26/13 22:50	11/25/13	
Iron, Total Recoverable	6010B	**15200**		ug/L	100	3	1	11/21/13 23:13	11/21/13	
Lead, Total Recoverable	6020	**0.60**		ug/L	0.50	0.12	1	11/26/13 22:50	11/25/13	
Manganese, Total Recoverable	6010B	**1760**		ug/L	10	3	1	11/21/13 23:14	11/21/13	
Mercury, Total	7470A	0.02	U	ug/L	0.10	0.02	1	11/22/13 14:29	11/21/13	
Selenium, Total Recoverable	6020	1.1	U	ug/L	2.0	1.1	1	11/26/13 22:50	11/25/13	
Silver, Total Recoverable	6020	0.06	U	ug/L	0.50	0.06	1	11/26/13 22:50	11/25/13	
Zinc, Total Recoverable	6020	**3.1**	**J**	ug/L	5.0	1.6	1	11/26/13 22:50	11/25/13	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 13:55
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-1	**Basis:**	NA
Lab Code:	J1307034-005		

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	11/21/13	NA	
Carbon, Total Organic (TOC)	415.1	**5.6**		mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**18**	**J**	mg/L	20	16	1	12/03/13	12/03/13	
Chloride	300.0	**12.1**		mg/L	0.50	0.11	1	11/21/13	NA	
Conductivity at 25 Degrees Celsius	120.1	**612**		uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	**0.20**		mg/L	0.20	0.02	1	11/21/13	NA	
Nitrate as Nitrogen	300.0	0.03	U	mg/L	0.20	0.03	1	11/21/13	NA	
pH	SM 4500-H+ B	**6.43**		pH Units	-	-	1	11/20/13	NA	H
Solids, Total Dissolved (TDS)	160.1	**391**		mg/L	10	10	1	11/21/13	NA	
Sulfate	300.0	**1.68**		mg/L	0.50	0.18	1	11/21/13	NA	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 00:00
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	Dup-1	**Basis:**	NA
Lab Code:	J1307034-006		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**0.7 J**	ug/L	1.0	0.5	1	11/26/13 22:55	11/25/13	
Barium, Total Recoverable	6020	**231**	ug/L	2.0	0.5	1	11/26/13 22:55	11/25/13	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/26/13 22:55	11/25/13	
Chromium, Total Recoverable	6020	**0.9 J**	ug/L	1.0	0.2	1	11/26/13 22:55	11/25/13	
Copper, Total Recoverable	6020	**2.1**	ug/L	1.0	0.3	1	11/26/13 22:55	11/25/13	
Iron, Total Recoverable	6010B	**20000**	ug/L	100	3	1	11/21/13 23:33	11/21/13	
Lead, Total Recoverable	6020	**1.04**	ug/L	0.50	0.12	1	11/26/13 22:55	11/25/13	
Manganese, Total Recoverable	6010B	**1800**	ug/L	10	3	1	11/21/13 23:34	11/21/13	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/22/13 14:30	11/21/13	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/26/13 22:55	11/25/13	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/26/13 22:55	11/25/13	
Zinc, Total Recoverable	6020	**3.1 J**	ug/L	5.0	1.6	1	11/26/13 22:55	11/25/13	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 00:00
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	Dup-1	**Basis:**	NA
Lab Code:	J1307034-006		

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	11/21/13	NA	*
Carbon, Total Organic (TOC)	415.1	**5.5**	mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**21**	mg/L	20	16	1	12/03/13	12/03/13	
Chloride	300.0	**11.7**	mg/L	0.50	0.11	1	11/20/13	NA	
Conductivity at 25 Degrees Celsius	120.1	**593**	uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	**0.20**	mg/L	0.20	0.02	1	11/20/13	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	11/20/13	NA	
pH	SM 4500-H+ B	**6.42**	pH Units	-	-	1	11/20/13	NA	H
Solids, Total Dissolved (TDS)	160.1	**371**	mg/L	10	10	1	11/21/13	NA	
Sulfate	300.0	**1.69**	mg/L	0.50	0.18	1	11/20/13	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1307034-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	11/26/13 21:19	11/25/13	
Barium, Total Recoverable	6020	0.5	U	ug/L	2.0	0.5	1	11/26/13 21:19	11/25/13	
Cadmium, Total Recoverable	6020	0.10	U	ug/L	0.40	0.10	1	11/26/13 21:19	11/25/13	
Chromium, Total Recoverable	6020	0.2	U	ug/L	1.0	0.2	1	11/26/13 21:19	11/25/13	
Copper, Total Recoverable	6020	0.3	U	ug/L	1.0	0.3	1	11/26/13 21:19	11/25/13	
Iron, Total Recoverable	6010B	3	U	ug/L	100	3	1	11/21/13 21:50	11/21/13	
Lead, Total Recoverable	6020	0.12	U	ug/L	0.50	0.12	1	11/26/13 21:19	11/25/13	
Manganese, Total Recoverable	6010B	3	U	ug/L	10	3	1	11/21/13 21:51	11/21/13	
Mercury, Total	7470A	0.02	U	ug/L	0.10	0.02	1	11/22/13 14:03	11/21/13	
Selenium, Total Recoverable	6020	1.1	U	ug/L	2.0	1.1	1	11/26/13 21:19	11/25/13	
Silver, Total Recoverable	6020	0.06	U	ug/L	0.50	0.06	1	11/26/13 21:19	11/25/13	
Zinc, Total Recoverable	6020	**1.6**	**J**	ug/L	5.0	1.6	1	11/26/13 21:19	11/25/13	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1307034-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	11/21/13	NA	
Carbon, Total Organic (TOC)	415.1	0.09 U	mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	16 U	mg/L	20	16	1	12/03/13	12/03/13	
Chloride	300.0	0.11 U	mg/L	0.50	0.11	1	11/20/13	NA	
Conductivity at 25 Degrees Celsius	120.1	1.0 U	uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	0.02 U	mg/L	0.20	0.02	1	11/20/13	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	11/20/13	NA	
Solids, Total Dissolved (TDS)	160.1	10 U	mg/L	10	10	1	11/21/13	NA	
Sulfate	300.0	0.18 U	mg/L	0.50	0.18	1	11/20/13	NA	

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dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1307034-MB2		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Chemical Oxygen Demand, Total	SM21 5220 D	16 U	mg/L	20	16	1	12/04/13	12/03/13	
Sulfate	300.0	0.18 U	mg/L	0.50	0.18	1	11/22/13	NA	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: EarthCon Site Services Inc
Project: IP Roanoke Rapids/25.20090383.13
Sample Matrix: Water

Service Request: J1307034
Date Collected: 11/19/13
Date Received: 11/20/13
Date Analyzed: 11/21/13

Duplicate Matrix Spike Summary
Inorganic Parameters

Sample Name: LG-1
Lab Code: J1307034-005

Units: ug/L
Basis: NA

			Matrix Spike J1307034-005MS			Duplicate Matrix Spike J1307034-005DMS					
Analyte Name	**Method**	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Iron, Total Recoverable	6010B	15200	20200	5000	100	20700	5000	109	75-125	2	20
Manganese, Total Recoverable	6010B	1760	2220	500	93	2270	500	102	75-125	2	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.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: EarthCon Site Services Inc
Project: IP Roanoke Rapids/25.20090383.13
Sample Matrix: Water

Service Request: J1307034
Date Analyzed: 11/21/13 - 11/26/13

Lab Control Sample Summary
Inorganic Parameters

Units: ug/L
Basis: NA

Lab Control Sample
J1307034-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Total Recoverable	6020	51.0	50.0	102	80-120
Barium, Total Recoverable	6020	101	100	101	80-120
Cadmium, Total Recoverable	6020	19.6	20.0	98	80-120
Chromium, Total Recoverable	6020	51.9	50.0	104	80-120
Copper, Total Recoverable	6020	50.8	50.0	102	80-120
Iron, Total Recoverable	6010B	4950	5000	99	80-120
Lead, Total Recoverable	6020	26.0	25.0	104	80-120
Manganese, Total Recoverable	6010B	504	500	101	80-120
Mercury, Total	7470A	1.29	1.25	103	80-120
Selenium, Total Recoverable	6020	101	100	101	80-120
Silver, Total Recoverable	6020	25.1	25.0	100	80-120
Zinc, Total Recoverable	6020	253	250	101	80-120

ALS Group USA, Corp.
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QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13
Sample Matrix:	Water	**Date Received:**	11/20/13
		Date Analyzed:	11/22/13 - 12/03/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	LG-6	**Units:**	mg/L
Lab Code:	J1307034-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1307034-001DUP1 Result	Average	RPD	RPD Limit
Carbon, Total Organic (TOC)	415.1	1.0	0.09	16.6	16.4	16.5	1	20
Chemical Oxygen Demand, Total	SM21 5220 D	20	16	45	64	54.8	35 *	5

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.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13
Sample Matrix:	Water	**Date Received:**	11/20/13
		Date Analyzed:	12/03/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	LG-6	**Units:**	uMHOS/cm
Lab Code:	J1307034-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1307034-001DUP1 Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	120.1	1.0	1.0	3170	3130	3150	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.

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dba ALS Environmental

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13
Sample Matrix:	Water	**Date Received:**	11/20/13
		Date Analyzed:	11/22/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Dup-1	**Units:**	mg/L
Lab Code:	J1307034-006	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1307034-006DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic (TOC)	415.1	1.0	0.09	5.5	5.4	5.45	3	20

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13
Sample Matrix:	Water	**Date Received:**	11/20/13
		Date Analyzed:	12/04/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name: LG-6 **Units:** mg/L
Lab Code: J1307034-001 **Basis:** NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1307034-001DUP2 Result	Average	RPD	RPD Limit
Chemical Oxygen Demand, Total	SM21 5220 D	20	16	45	40	42.5	13 *	5

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.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13
Sample Matrix:	Water	**Date Received:**	11/20/13
		Date Analyzed:	11/22/13 - 12/03/13

Matrix Spike Summary
Carbon, Total Organic (TOC)

Sample Name:	LG-6	**Units:**	mg/L
Lab Code:	J1307034-001	**Basis:**	NA

Matrix Spike
J1307034-001MS1

Analyte Name	Method	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC)	415.1	16.6	62.7	50.0	92	90-110
Chemical Oxygen Demand, Total	SM21 5220 D	45	586	500	108	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.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13
Sample Matrix:	Water	**Date Received:**	11/20/13
		Date Analyzed:	11/22/13

Matrix Spike Summary
Carbon, Total Organic (TOC)

Sample Name:	Dup-1	**Units:**	mg/L
Lab Code:	J1307034-006	**Basis:**	NA
Analysis Method:	415.1		

Matrix Spike
J1307034-006MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC)	5.5	53.0	50.0	95	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.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13
Sample Matrix:	Water	**Date Received:**	11/20/13
		Date Analyzed:	12/4/13
		Date Extracted:	12/3/13

Matrix Spike Summary
Chemical Oxygen Demand, Total

Sample Name:	LG-6	**Units:**	mg/L
Lab Code:	J1307034-001	**Basis:**	NA
Analysis Method:	SM21 5220 D		
Prep Method:	Method		

Matrix Spike
J1307034-001MS2

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Chemical Oxygen Demand, Total	45	585	500	108	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.

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dba ALS Environmental

QA/QC Report

Client: EarthCon Site Services Inc
Project: IP Roanoke Rapids/25.20090383.13
Sample Matrix: Water

Service Request: J1307034
Date Analyzed: 11/20/13 - 12/03/13

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Lab Control Sample
J1307034-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Biochemical Oxygen Demand (BOD)	405.1	195	198	99	84.6-115.4
Carbon, Total Organic (TOC)	415.1	46.4	50.0	93	90-110
Chemical Oxygen Demand, Total	SM21 5220 D	500	500	100	95-105
Chloride	300.0	51.5	50.0	103	90-110
Fluoride	300.0	5.16	5.00	103	90-110
Nitrate as Nitrogen	300.0	5.18	5.00	104	90-110
Solids, Total Dissolved (TDS)	160.1	302	300	101	85-115
Sulfate	300.0	52.2	50.0	104	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: EarthCon Site Services Inc
Project: IP Roanoke Rapids/25.20090383.13
Sample Matrix: Water

Service Request: J1307034
Date Analyzed: 12/3/13

Lab Control Sample Summary
General Chemistry Parameters

Units: uMHOS/cm
Basis: NA

Lab Control Sample
J1307034-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Conductivity at 25 Degrees Celsius	120.1	961	1000	96	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: EarthCon Site Services Inc
Project: IP Roanoke Rapids/25.20090383.13
Sample Matrix: Water

Service Request: J1307034
Date Analyzed: 11/22/13 - 12/04/13

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Lab Control Sample
J1307034-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chemical Oxygen Demand, Total	SM21 5220 D	479	500	96	95-105
Sulfate	300.0	52.3	50.0	105	90-110

ALS Environmental

Cooler Receipt Form

Client: Earth Con Service Request #: J1307034

Project: IP Roanoke Rapids

Cooler received on 11/20/13 and opened on 11/20/13 by SL

COURIER: ALS UPS FEDEX Client Other _____ Airbill # 8009 0393 0172

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)	6.1°C					
5	Thermometer ID	T81					
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
LG-6	HNO3	Met 13-466	3.0	SL 11/20/13 1245
LG-3	↓	↓	2.0	
LG-7	↓	↓	2.0	↓
LG-1	↓	↓	1.0	↓
Dup-1	↓	↓	1.0	↓

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 1 OF 1

SR#
CAS Contract J1307034

Project Name: IP Roanoke Rapids
Project Number: 25.20090383.13
Project Manager: Peter Ramsey
Email Address: PRamsey@EarthCon.com
Company/Address: EarthCon Consultants, Inc
1880 West Oak Pkwy, Bld 100, Ste 106
Marietta, GA 30062
Phone #: 770-973-2100
FAX #: 770-973-7395
Sampler's Signature:
Sampler's Printed Name: Kent M Davis

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1 3 3 2 0

J1307034
EarthCon Site Services Inc
IP Roanoke Rapids

5

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	TSS	COD	TOX	Metals	Various	REMARKS/ ALTERNATE DESCRIPTION
LG-6		11/19/13	0840	GW	6	2	1	1	1	1	
LG-5			0955		6	2	1	1	1	1	
LG-3			1120		6	2	1	1	1	1	
LG-7			1225		6	2	1	1	1	1	
LG-1			1355		6	2	1	1	1	1	
Dup-1			—		6	2	1	1	1	1	

SPECIAL INSTRUCTIONS/COMMENTS

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
X 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: 11°C CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Kent M Davis	Printed Name: Shawn Lightsey	Printed Name	Printed Name	Printed Name	Printed Name
Firm: EarthCon	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 11/19/13 1630	Date/Time: 11/20/13 0925	Date/Time	Date/Time	Date/Time	Date/Time

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

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ALS Environmental 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

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

November 27, 2013

Jerry Allen
ALS Environmental, Inc.
9143 Philips HWY
Jacksonville, FL 32256
TEL: (904) 739-3277
FAX: (904) 739-2011

RE: J1307034

Order No.: 13111918

Dear Jerry Allen:

Summit Environmental Technologies, Inc. received 6 sample(s) on 11/22/2013 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Quality control data is within laboratory defined or method specified acceptance limits except where noted.

If you have any questions regarding these tests results, please feel free to call the laboratory.

Sincerely,

Dr. Mo Osman
Project Manager
3310 Win St.
Cuyahoga Falls, Ohio 44223

A2LA 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, 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 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

SUMMIT ENVIRONMENTAL TECHNOLOGIES, INC
Analytical Laboratories

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Case Narrative

WO#: 13111918
Date: 11/27/2013

CLIENT: ALS Environmental, Inc.
Project: J1307034

This report in its entirety consists of the documents listed below. All documents contain the Summit Environmental Technologies, Inc. Work Order Number assigned to this report.

Paginated Report including: Cover Letter, Case Narrative, Analytical Results, Applicable Quality Control Summary Reports and copies of the Chain of Custody Documents supplied with this sample set.

Concentrations reported with a J flag in the Qual field are values below the Limit of Quantitation (LOQ) but greater than the established Limit of Detection (LOD). There is greater uncertainty associated with these results and data should be considered as estimated.

Method numbers, unless specified as SM (Standard Methods) or ASTM, are EPA methods.

Estimated uncertainty values are available upon request.

Any comments or problems with the analytical events associated with this report are noted below.

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC
Analytical Laboratories

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Workorder Sample Summary

WO#: **13111918**

13-Dec-13

CLIENT: ALS Environmental, Inc.
Project: J1307034

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
13111918-001	J1307034-001		11/19/2013 8:40:00 AM	11/22/2013 10:30:00 AM	Non-Potable Water
13111918-002	J1307034-002		11/19/2013 9:55:00 AM	11/22/2013 10:30:00 AM	Non-Potable Water
13111918-003	J1307034-003		11/19/2013 11:20:00 AM	11/22/2013 10:30:00 AM	Non-Potable Water
13111918-004	J1307034-004		11/19/2013 12:25:00 PM	11/22/2013 10:30:00 AM	Non-Potable Water
13111918-005	J1307034-005		11/19/2013 1:55:00 PM	11/22/2013 10:30:00 AM	Non-Potable Water
13111918-006	J1307034-006		11/19/2013	11/22/2013 10:30:00 AM	Non-Potable Water

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC
Analytical Laboratories

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

WO#: **13111918**
Date Reported: **11/27/2013**
Company: ALS Environmental, Inc.
Address: 9143 Philips HWY
Jacksonville FL 32256

Received: 11/22/2013
Project#: J1307034

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
J1307034-001	001	11/19/2013	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/27/2013	JRK

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
J1307034-002	002	11/19/2013	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/27/2013	JRK

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
J1307034-003	003	11/19/2013	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/27/2013	JRK

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
J1307034-004	004	11/19/2013	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/27/2013	JRK

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
J1307034-005	005	11/19/2013	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/27/2013	JRK

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
J1307034-006	006	11/19/2013	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/27/2013	JRK

SUMMIT ENVIRONMENTAL TECHNOLOGIES, INC
Analytical Laboratories

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

QC SUMMARY REPORT

WO#: 13111918
13-Dec-13

Client: ALS Environmental, Inc.
Project: J1307034

TestCode: TOX_NPW(9020)

Sample ID: MB-R9352 SampType: MBLK TestCode: TOX_NPW(90 Units: mg/L Prep Date: RunNo: 9352
Client ID: PBW Batch ID: R9352 TestNo: SW9020 Analysis Date: 11/27/2013 SeqNo: 100454

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Halides	ND	0.10									

Sample ID: LCS-R9352 SampType: LCS TestCode: TOX_NPW(90 Units: mg/L Prep Date: RunNo: 9352
Client ID: LCSW Batch ID: R9352 TestNo: SW9020 Analysis Date: 11/27/2013 SeqNo: 100455

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Halides	0.32	0.10	0.3300	0	97.0	70	130				

Sample ID: LCSD-R9352 SampType: LCSD TestCode: TOX_NPW(90 Units: mg/L Prep Date: RunNo: 9352
Client ID: LCSS02 Batch ID: R9352 TestNo: SW9020 Analysis Date: 11/27/2013 SeqNo: 100456

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Halides	0.34	0.10	0.3300	0	103	0	0	0.3200	6.06	20	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	C	Value is below Minimum Compound Limit
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

ALS Environmental Chain of Custody

9143 Philips Highway, Suite 200 • Jacksonville, FL 32256 • 904-739-2277 • FAX 904-739-2011

ALS Contact: Jerry Allen

Project Number: J1307034
Project Manager: Jerry Allen

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID Summit	TOX 9020B
J1307034-001	LG-6	1	Water	11/19/13	0840	~~Middletown~~	X
J1307034-002	LG-5		Water	11/19/13	0955	~~Middletown~~	X
J1307034-003	LG-3		Water	11/19/13	1120	~~Middletown~~	X
J1307034-004	LG-2		Water	11/19/13	1225	~~Middletown~~	X
J1307034-005	LG-1		Water	11/19/13	1355	~~Middletown~~	X
J1307034-006	Dup-1		Water	11/19/13	0000	~~Middletown~~	X

Test Comments
TOX - 9020B

J1307034-001,2,3,4,5,6

Send to Summit Labs in Ohio

13111918-01-06

Special Instructions/Comments	Turnaround Requirements	Report Requirements	Invoice Information
H - Test is On Hold P - Test is Authorized for Prep Only	___ RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 ✓ STANDARD Requested FAX Date: _____ Requested Report Date: 12/04/13	___ I. Results Only ✓ II. Results + QC Summaries ___ III. Results + QC and Calibration Summaries ___ IV. Data Validation Report with Raw Data PQL/MDL/J Y EDD Y	PO# J1307034 Bill to

Relinquished By: 11-21-13 Received By: 11-22-13 10:30 Airbill Number: _____

Page 1

EarthCon Consultants, Inc.
129 Monohon Landing Road
Raymond, Washington 98577

P: 360-942-3409
M: 360-942-8927
F: 360-942-6060
kgunderson@earthcon.com
www.earthcon.com

Memorandum

Date:	January 27, 2014
To:	Kent Davis, EarthCon Consultants
From:	Kathy J. Gunderson, Senior Quality Assurance Chemist
Subject:	Quality Assurance Review
Project:	International Paper - Roanoke Rapids, NC - Low Ground Landfill
Sampling Date:	November 19, 2013
Project Number:	25.20090383.13

1.0 Introduction

This memorandum presents the cursory validation of the water sample analyses listed in Table 1. The analyses were performed by ALS Environmental (ALS), formally Columbia Analytical Services, with the exception of the total organic halide (TOX) analyses that were subcontracted to Summit Environmental Technologies, Inc.

The criteria used to qualify the 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	Total Metals[a]	Wet Chemistry Parameters[b]
LG-6	J1307034-001	X	X
LG-5	J1307034-002	X	X
LG-3	J1307034-003	X	X
LG-7	J1307034-004	X	X
LG-1	J1307034-005	X	X
DUP-1	J1307034-006	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, conductivity by Method 120.1, TDS by Method 160.1, TOX by Method 9020 and nitrate, sulfate, fluoride and chloride by Method 300.0 (SM 1992, USEPA 1983, USEPA 1996, and USEPA 1999b)

2.0 Data Validation Findings

2.1 Custody, Preservation, and Completeness

Sample custody was maintained from sample collection to receipt at the laboratory. The report is complete and contains results for the samples and tests requested on the COC form. The samples were received intact and were properly preserved.

- A typographical error flagged the zinc result of the method blank I instead of J. ALS resubmitted a corrected report electronically.
- The preservation pH of the metals aliquots of all samples was not less than 2 as required. The sample aliquots were acidified prior to analysis. Data qualifiers are not required.
- The TOX QC data was missing from the Summit Environmental Technologies subcontract report. The missing information was resubmitted electronically.

2.2 Metals Analyses

The samples listed on Table 1 were analyzed for total iron and manganese by Method 6010B, total arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, and zinc by Method 6020, and total mercury by Method 7470A.

2.2.1 Holding Times

The samples were analyzed within the method-required holding times of 28 days for mercury and 180 days for all other metals.

2.2.2 Blank Analyses

2.2.2.1 Method Blanks

Method blanks were analyzed at the required frequency of one per digestion batch. With one exception, target metals were not detected at concentrations above the method detection limits (MDLs) in the method blanks.

- Total zinc was detected in the method blank at 1.6 µg/L. Functional Guidelines 2004 prescribes using a 10-fold action level, i.e., associated sample concentrations greater than 10 times the blank concentration are not qualified. Since the results were reported to the MDL, associated sample concentrations less than the action level and greater than the reporting limit are qualified as undetected (U) at the reported value and associated sample concentrations less than the action level and less than the reporting limit are qualified as undetected (U) at the reporting limit. The samples were qualified as shown below and in Section 5.0.

Sample ID	Analyte	Qualifier	Reason for Qualification
LG-6	Total zinc	U at RL	Result < RL & < 10X the method blank concentration
LG-5	Total zinc	U	Result > RL & < 10X the method blank concentration
LG-3	Total zinc	U at RL	Result < RL & < 10X the method blank concentration
LG-7	Total zinc	U at RL	Result < RL & < 10X the method blank concentration
LG-1	Total zinc	U at RL	Result < RL & < 10X the method blank concentration
DUP-1	Total zinc	U at RL	Result < RL & < 10X the method blank concentration

2.2.2.2 Field Blanks

Field blanks were not collected with the samples. Data qualification is not required.

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

Except as noted below, MS/MSDs were analyzed as required. The recovery and RPD values for the MS/MSD of sample LG-1 are within the laboratory QC limits.

- MS/MSD results were not reported for Method 6020. Data qualifiers are not required due to a lack of laboratory QC results.

2.2.4 Laboratory Control Sample Analyses

LCS samples were analyzed at the required frequency of one per digestion batch. The recovery values are within the laboratory QC limits 80 to 120 percent.

2.2.5 Laboratory Reporting Limits

Project specific reporting limits were not specified. The reporting limits used by the laboratory are reasonable for the analytical methods.

2.2.6 Field Duplicates

One field duplicate pair (LG-1/ DUP-1) was collected with these samples. Field duplicate RPD values less than 35 as considered acceptable precision for water samples. The field duplicate RPD values are acceptable, with two exceptions.

Parameter	Units	LG-1 Sample Result	Dup-1 Duplicate Result	RPD
Total Arsenic	µg/L	<0.5	0.7	NC
Total Barium	µg/L	212	231	8.9
Total Chromium	µg/L	0.3	0.9	100
Total Copper	µg/L	1.6	2.1	27
Total Iron	µg/L	15,200	20,000	27
Total Lead	µg/L	0.60	1.04	54
Total Manganese	µg/L	1760	1800	2.2

NC – Not calculatable

- The total chromium and lead RPD values are above criteria at 100 and 54, respectively. The total chromium and lead results of both samples are qualified as estimated (J) as shown below and in Section 5.0.

Sample ID	Analyte	Qualifier	Reason for Qualification
LG-1	Total chromium	J	Field duplicate RPD greater than 35
LG-1	Total lead	J	Field duplicate RPD greater than 35
DUP-1	Total chromium	J	Field duplicate RPD greater than 35
DUP-1	Total lead	J	Field duplicate RPD greater than 35

2.2.7 Overall Assessment of Data Usability

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

2.3 General Chemistry Analyses

The samples were analyzed for biochemical oxygen demand (BOD), total organic carbon (TOC), chemical oxygen demand (COD), conductivity, total dissolved solids (TDS), nitrate, fluoride, sulfate, chloride, and total organic halides (TOX). Field pH measurements were used in place of the laboratory pH results because EPA requires pH analysis within 15 minutes of collection and recommends using field collection of pH data.

2.3.1 Holding Times

The samples were analyzed within the method-required holding times of 48 hours for BOD and nitrate, 7 days for TDS, and 28 days for chloride, COD, conductance, fluoride, sulfate, TOC, and TOX.

2.3.2 Blank Analyses

2.3.2.1 Method Blanks

Method blanks were analyzed at the required frequency of one per batch. Target constituents were not detected in the method blanks.

2.3.2.2 Field Blanks

Field blanks were not collected with the samples. Data qualification is not required.

2.3.3 Matrix Spike Analyses

Except as noted below, matrix spikes were reported as required. The recovery values are within the laboratory QC limits.

- Matrix spike analyses were not report for TOX. Data qualifiers are not required based on a lack of laboratory QC samples. Note that the LCS results are acceptable, demonstrating the analytical system is in-control.

2.3.4 Matrix Duplicate Analyses

Except as noted below, matrix duplicates were analyzed as required and the RPD values are within the laboratory QC limits.

- Matrix duplicates were not report for TOX. Data qualifiers are not required based on a lack of laboratory QC results. Note that the field duplicate results are acceptable, demonstrating acceptable analytical system precision.

- The COD RPD value is above the laboratory control limit of less than 2 at 35 in the duplicate analysis of sample LG-6. The analysis was repeated with an RPD value of 13, which is above the laboratory control limit, but demonstrates acceptable precision. Data qualifiers are not required.

2.3.5 Laboratory Control Sample Analyses

LCSs or LCS/LCSDs were analyzed as required. The recovery and RPD values are within the laboratory QC limits.

2.3.6 Laboratory Reporting Limits

Project specific reporting limits were not specified. The reporting limits used by the laboratory are reasonable for the analytical methods.

2.3.7 Field Duplicates Analyses

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

Parameter	Units	LG-1 Sample Result	Dup-1 Duplicate Result	RPD
Total organic carbon	mg/L	5.6	5.5	1.8
Chemical oxygen demand	mg/L	18	21	15
Chloride	mg/L	12.1	11.7	3.4
Conductivity	umhos/cm	612	593	3.2
Fluoride	mg/L	0.20	0.20	0
Total dissolved solids	mg/L	391	371	5.3
Sulfate	mg/L	1.68	1.69	0.6

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.

3.0 Data Qualifier Definitions

The following data validation qualifiers were used in the review of this data set. These qualifiers are from *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2004).

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R The data are unusable. The sample result was rejected due to serious deficiencies in meeting quality control criteria. The Analyte may or may not be present in the sample.

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. 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

The following sample results were qualified during the review of this data set.

Sample ID	Analyte	Qualifier	Reason for Qualification
LG-6	Total zinc	U at RL	Result < RL & < 10X the method blank concentration
LG-5	Total zinc	U	Result > RL & < 10X the method blank concentration
LG-3	Total zinc	U at RL	Result < RL & < 10X the method blank concentration
LG-7	Total zinc	U at RL	Result < RL & < 10X the method blank concentration
LG-1	Total zinc	U at RL	Result < RL & < 10X the method blank concentration
DUP-1	Total zinc	U at RL	Result < RL & < 10X the method blank concentration
LG-1	Total chromium	J	Field duplicate RPD greater than 35
LG-1	Total lead	J	Field duplicate RPD greater than 35
DUP-1	Total chromium	J	Field duplicate RPD greater than 35
DUP-1	Total lead	J	Field duplicate RPD greater than 35

RL – Reporting limit

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 08:40
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-6	**Basis:**	NA
Lab Code:	J1307034-001		

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	11/26/13 22:30	11/25/13	
Barium, Total Recoverable	6020	**613**	ug/L	2.0	0.5	1	11/26/13 22:30	11/25/13	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/26/13 22:30	11/25/13	
Chromium, Total Recoverable	6020	**3.3**	ug/L	1.0	0.2	1	11/26/13 22:30	11/25/13	
Copper, Total Recoverable	6020	**0.6 J**	ug/L	1.0	0.3	1	11/26/13 22:30	11/25/13	
Iron, Total Recoverable	6010B	**880**	ug/L	100	3	1	11/21/13 22:31	11/21/13	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/26/13 22:30	11/25/13	
Manganese, Total Recoverable	6010B	**1110**	ug/L	10	3	1	11/21/13 22:32	11/21/13	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/22/13 14:24	11/21/13	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/26/13 22:30	11/25/13	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/26/13 22:30	11/25/13	
Zinc, Total Recoverable	6020	5.0 ~~1.7 J~~ U	ug/L	5.0	1.6	1	11/26/13 22:30	11/25/13	

RJD 1-27-14

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 08:40
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-6	**Basis:**	NA
Lab Code:	J1307034-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**3.8**	mg/L	2.0	2.0	1	11/21/13	NA	
Carbon, Total Organic (TOC)	415.1	**16.6**	mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**45**	mg/L	20	16	1	12/04/13	12/03/13	
Chloride	300.0	**18.4**	mg/L	0.50	0.11	1	11/20/13	NA	
Conductivity at 25 Degrees Celsius	120.1	**3170**	uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	**0.30**	mg/L	0.20	0.02	1	11/20/13	NA	
Nitrate as Nitrogen	300.0	**0.43**	mg/L	0.20	0.03	1	11/20/13	NA	
pH	SM 4500-H+ B	**6.94**	pH Units	-	-	1	11/20/13	NA	H
Solids, Total Dissolved (TDS)	160.1	**2240**	mg/L	40	40	4	11/21/13	NA	
Sulfate	300.0	**117**	mg/L	0.50	0.18	1	11/20/13	NA	

KP 12714

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 09:55
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-5	**Basis:**	NA
Lab Code:	J1307034-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**1.5**	ug/L	1.0	0.5	1	11/26/13 22:35	11/25/13	
Barium, Total Recoverable	6020	**141**	ug/L	2.0	0.5	1	11/26/13 22:35	11/25/13	
Cadmium, Total Recoverable	6020	**0.13 J**	ug/L	0.40	0.10	1	11/26/13 22:35	11/25/13	
Chromium, Total Recoverable	6020	**0.9 J**	ug/L	1.0	0.2	1	11/26/13 22:35	11/25/13	
Copper, Total Recoverable	6020	**2.6**	ug/L	1.0	0.3	1	11/26/13 22:35	11/25/13	
Iron, Total Recoverable	6010B	**20300**	ug/L	100	3	1	11/21/13 22:40	11/21/13	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/26/13 22:35	11/25/13	
Manganese, Total Recoverable	6010B	**12900**	ug/L	10	3	1	11/21/13 22:41	11/21/13	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/22/13 14:25	11/21/13	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/26/13 22:35	11/25/13	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/26/13 22:35	11/25/13	
Zinc, Total Recoverable	6020	**8.4** U	ug/L	5.0	1.6	1	11/26/13 22:35	11/25/13	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 09:55
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-5	**Basis:**	NA
Lab Code:	J1307034-002		

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	11/21/13	NA	
Carbon, Total Organic (TOC)	415.1	**8.9**		mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**45**		mg/L	20	16	1	12/03/13	12/03/13	
Chloride	300.0	**2.96**		mg/L	0.50	0.11	1	11/20/13	NA	
Conductivity at 25 Degrees Celsius	120.1	**719**		uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	**0.19**	J	mg/L	0.20	0.02	1	11/20/13	NA	
Nitrate as Nitrogen	300.0	0.03	U	mg/L	0.20	0.03	1	11/20/13	NA	
pH	SM 4500-H+ B	**6.17**		pH Units	-	-	1	11/20/13	NA	H
Solids, Total Dissolved (TDS)	160.1	**580**		mg/L	10	10	1	11/21/13	NA	
Sulfate	300.0	**206**		mg/L	1.0	0.4	2	11/22/13	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 11:20
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-3	**Basis:**	NA
Lab Code:	J1307034-003		

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	11/26/13 22:40	11/25/13	
Barium, Total Recoverable	6020	**66.1**	ug/L	2.0	0.5	1	11/26/13 22:40	11/25/13	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/26/13 22:40	11/25/13	
Chromium, Total Recoverable	6020	0.2 U	ug/L	1.0	0.2	1	11/26/13 22:40	11/25/13	
Copper, Total Recoverable	6020	**0.8 J**	ug/L	1.0	0.3	1	11/26/13 22:40	11/25/13	
Iron, Total Recoverable	6010B	**7 J**	ug/L	100	3	1	11/21/13 22:45	11/21/13	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/26/13 22:40	11/25/13	
Manganese, Total Recoverable	6010B	**2520**	ug/L	10	3	1	11/21/13 22:46	11/21/13	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/22/13 14:26	11/21/13	
Selenium, Total Recoverable	6020	**1.7 J**	ug/L	2.0	1.1	1	11/26/13 22:40	11/25/13	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/26/13 22:40	11/25/13	
Zinc, Total Recoverable	6020	5.0 ~~2.1 J~~ U	ug/L	5.0	1.6	1	11/26/13 22:40	11/25/13	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 11:20
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-3	**Basis:**	NA
Lab Code:	J1307034-003		

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	11/21/13	NA	
Carbon, Total Organic (TOC)	415.1	**7.5**	mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**29**	mg/L	20	16	1	12/03/13	12/03/13	
Chloride	300.0	**40.3**	mg/L	0.50	0.11	1	11/21/13	NA	
Conductivity at 25 Degrees Celsius	120.1	**1970**	uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	**0.27**	mg/L	0.20	0.02	1	11/21/13	NA	
Nitrate as Nitrogen	300.0	**34.0**	mg/L	2.0	0.3	10	11/21/13	NA	
pH	SM 4500-H+ B	**6.57**	pH Units	-	-	1	11/20/13	NA	H
Solids, Total Dissolved (TDS)	160.1	**1360**	mg/L	20	20	2	11/21/13	NA	
Sulfate	300.0	**228**	mg/L	5.0	1.8	10	11/21/13	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 12:25
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-7	**Basis:**	NA
Lab Code:	J1307034-004		

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	11/26/13 22:45	11/25/13	
Barium, Total Recoverable	6020	**293**	ug/L	2.0	0.5	1	11/26/13 22:45	11/25/13	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/26/13 22:45	11/25/13	
Chromium, Total Recoverable	6020	0.2 U	ug/L	1.0	0.2	1	11/26/13 22:45	11/25/13	
Copper, Total Recoverable	6020	**1.2**	ug/L	1.0	0.3	1	11/26/13 22:45	11/25/13	
Iron, Total Recoverable	6010B	**50 J**	ug/L	100	3	1	11/21/13 23:04	11/21/13	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	11/26/13 22:45	11/25/13	
Manganese, Total Recoverable	6010B	**518**	ug/L	10	3	1	11/21/13 23:05	11/21/13	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/22/13 14:27	11/21/13	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/26/13 22:45	11/25/13	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/26/13 22:45	11/25/13	
Zinc, Total Recoverable	6020	5.0 ~~2.1 J~~ U	ug/L	5.0	1.6	1	11/26/13 22:45	11/25/13	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 12:25
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-7	**Basis:**	NA
Lab Code:	J1307034-004		

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	11/21/13	NA	
Carbon, Total Organic (TOC)	415.1	**7.4**		mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**25**		mg/L	20	16	1	12/03/13	12/03/13	
Chloride	300.0	**35.1**		mg/L	0.50	0.11	1	11/21/13	NA	
Conductivity at 25 Degrees Celsius	120.1	**2480**		uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	**0.23**		mg/L	0.20	0.02	1	11/21/13	NA	
Nitrate as Nitrogen	300.0	**1.07**		mg/L	0.20	0.03	1	11/21/13	NA	
pH	SM 4500-H+ B	**6.95**		pH Units	-	-	1	11/20/13	NA	H
Solids, Total Dissolved (TDS)	160.1	**1770**		mg/L	20	20	2	11/21/13	NA	
Sulfate	300.0	**204**		mg/L	5.0	1.8	10	11/21/13	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 13:55
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-1	**Basis:**	NA
Lab Code:	J1307034-005		

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	11/26/13 22:50	11/25/13	
Barium, Total Recoverable	6020	**212**	ug/L	2.0	0.5	1	11/26/13 22:50	11/25/13	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/26/13 22:50	11/25/13	
Chromium, Total Recoverable	6020	**0.3** J J	ug/L	1.0	0.2	1	11/26/13 22:50	11/25/13	
Copper, Total Recoverable	6020	**1.6**	ug/L	1.0	0.3	1	11/26/13 22:50	11/25/13	
Iron, Total Recoverable	6010B	**15200**	ug/L	100	3	1	11/21/13 23:13	11/21/13	
Lead, Total Recoverable	6020	**0.60** J	ug/L	0.50	0.12	1	11/26/13 22:50	11/25/13	
Manganese, Total Recoverable	6010B	**1760**	ug/L	10	3	1	11/21/13 23:14	11/21/13	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/22/13 14:29	11/21/13	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/26/13 22:50	11/25/13	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/26/13 22:50	11/25/13	
Zinc, Total Recoverable	6020	5.0 ~~3.1 J~~ U	ug/L	5.0	1.6	1	11/26/13 22:50	11/25/13	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 13:55
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	LG-1	**Basis:**	NA
Lab Code:	J1307034-005		

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	11/21/13	NA	
Carbon, Total Organic (TOC)	415.1	**5.6**	mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**18 J**	mg/L	20	16	1	12/03/13	12/03/13	
Chloride	300.0	**12.1**	mg/L	0.50	0.11	1	11/21/13	NA	
Conductivity at 25 Degrees Celsius	120.1	**612**	uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	**0.20**	mg/L	0.20	0.02	1	11/21/13	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	11/21/13	NA	
pH	SM 4500-H+ B	**6.43**	pH Units	-	-	1	11/20/13	NA	H
Solids, Total Dissolved (TDS)	160.1	**391**	mg/L	10	10	1	11/21/13	NA	
Sulfate	300.0	**1.68**	mg/L	0.50	0.18	1	11/21/13	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 00:00
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	Dup-1	**Basis:**	NA
Lab Code:	J1307034-006		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**0.7** J	ug/L	1.0	0.5	1	11/26/13 22:55	11/25/13	
Barium, Total Recoverable	6020	**231**	ug/L	2.0	0.5	1	11/26/13 22:55	11/25/13	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	11/26/13 22:55	11/25/13	
Chromium, Total Recoverable	6020	**0.9** J J	ug/L	1.0	0.2	1	11/26/13 22:55	11/25/13	
Copper, Total Recoverable	6020	**2.1**	ug/L	1.0	0.3	1	11/26/13 22:55	11/25/13	
Iron, Total Recoverable	6010B	**20000**	ug/L	100	3	1	11/21/13 23:33	11/21/13	
Lead, Total Recoverable	6020	**1.04** J	ug/L	0.50	0.12	1	11/26/13 22:55	11/25/13	
Manganese, Total Recoverable	6010B	**1800**	ug/L	10	3	1	11/21/13 23:34	11/21/13	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	11/22/13 14:30	11/21/13	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	11/26/13 22:55	11/25/13	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	11/26/13 22:55	11/25/13	
Zinc, Total Recoverable	6020	5.0 ~~3.1 J~~ U	ug/L	5.0	1.6	1	11/26/13 22:55	11/25/13	

KAJ 1-7-14

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1307034
Project:	IP Roanoke Rapids/25.20090383.13	**Date Collected:**	11/19/13 00:00
Sample Matrix:	Water	**Date Received:**	11/20/13 09:25
Sample Name:	Dup-1	**Basis:**	NA
Lab Code:	J1307034-006		

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	11/21/13	NA	*
Carbon, Total Organic (TOC)	415.1	**5.5**	mg/L	1.0	0.09	1	11/22/13	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**21**	mg/L	20	16	1	12/03/13	12/03/13	
Chloride	300.0	**11.7**	mg/L	0.50	0.11	1	11/20/13	NA	
Conductivity at 25 Degrees Celsius	120.1	**593**	uMHOS/cm	1.0	1.0	1	12/03/13	NA	
Fluoride	300.0	**0.20**	mg/L	0.20	0.02	1	11/20/13	NA	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	11/20/13	NA	
pH	SM 4500-H+ B	**6.42**	pH Units	-	-	1	11/20/13	NA	H
Solids, Total Dissolved (TDS)	160.1	**371**	mg/L	10	10	1	11/21/13	NA	
Sulfate	300.0	**1.69**	mg/L	0.50	0.18	1	11/20/13	NA	

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