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July 7, 2014

RECEIVED
JUL 9 2014
SOLID WASTE SECTION

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 May 2014 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 May 2014 sampling activities were conducted by EarthCon and included obtaining depth to groundwater measurements from 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 three wells MW-LG3 (1,190 mg/L), MW-LG6 (2,100 mg/L) and MW-LG7 (1,520 mg/L) exceeded the NC 2L standard of 500 mg/L.
- The total iron results from four wells MW-LG1 (4,580 ug/L), MW-LG5 (12,400 ug/L), MW-LG6 (730 ug/L) and LG-7 (830 ug/L) exceeded the NC 2L standard of 300 ug/L.
- The total manganese results from the five wells MW-LG1 (623 ug/L), MW-LG3 (871 ug/L), MW-LG5 (4,940 ug/L), MW-LG6 (1,820 ug/L) and MW-LG7 (2,770 ug/L) exceeded the NC 2L standard of 50 ug/L.
- The nitrate as nitrogen result from one well MW-LG3 (20.4 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:

- The diluted nitrate analysis of sample LG-3 was performed past the 48-hour hold time. The positive nitrate result of sample LG-3 is qualified as estimated (J).
- The sample dilution series in the BOD analyses of the samples did not meet the oxygen depletion criteria. The BOD reporting limits for the samples are elevated.

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 TDS and iron for monitoring well LG-3 have increasing concentration trends; however, the concentrations are within historical ranges. 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. The detection of nitrate as nitrogen at a concentration of 20.4 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	May 12, 2014

Environmental Status: (Check all that apply)

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

Type of data submitted: (Check all that apply)

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

Notification attached?

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

Certification

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

Peter E. Ramsey — Facility Representative Name (Print)
Senior Geologist — Title
770-973-2100 ext. 2882 — (Area Code) Telephone Number

Peter E. Ramsey — Signature
7/7/14 — Date

Affix NC Licensed/ Professional Geologist Seal

NORTH CAROLINA LICENSED SEAL 2107 7/7/14 GEOLOGIST PETER E. RAMSEY

1880 W. Oak Pkwy, Bldg 100, Marietta, GA 30062
Facility Representative Address

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

Revised 6/2009

NC Solid Waste Section Summary Table
Submitted to NCDENR on July 7, 2014
Samples Collected on 05/12/14 by EarthCon Consultants, PC
Prepared by BGM 06/12/14 and Checked by PER 06/20/14

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	U	6020	0.5	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG1	7440-39-3	15	Barium, Total	109	ug/L		6020	0.5	2		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG1		316	Biochemical Oxygen Demand (BOD)	4000	ug/L	UX	405.1	4	4		2	05/12/2014		05/14/2014	527
42-03	4203-LG1	7440-43-9	34	Cadmium, Total	0.1	ug/L	U	6020	0.1	0.4		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG1	7440-44-0	357	Carbon, Total Organic (TOC)	12000	ug/L		415.1	0.09	1		1	05/12/2014		05/27/2014	527
42-03	4203-LG1		317	Chemical Oxygen Demand, Total	30000	ug/L		SM21 5220 D	16	20		1	05/12/2014	05/14/2014	05/15/2014	527
42-03	4203-LG1	16887-00-6	301	Chloride	1500	ug/L		300	0.2	1		1	05/12/2014		05/14/2014	527
42-03	4203-LG1	7440-47-3	51	Chromium, Total	2	ug/L		6020	0.2	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG1		324	Conductivity at 25 Degrees Celsius	191	uMHOS/cm		120.1	1	1		1	05/12/2014		05/15/2014	527
42-03	4203-LG1	7440-50-8	54	Copper, Total	6.4	ug/L		6020	0.3	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG1	16984-48-8	312	Fluoride	150	ug/L	J	300	0.02	0.2		1	05/12/2014		05/14/2014	527
42-03	4203-LG1		396	Halides, Total Organic (TOX)	160	ug/L		9020		0.1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG1	7439-89-6	340	Iron, Total	4580	ug/L		6010B	3	100		1	05/12/2014	05/14/2014	05/17/2014	527
42-03	4203-LG1	7439-92-1	131	Lead, Total	3.28	ug/L		6020	0.12	0.5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG1	7439-96-5	342	Manganese, Total	623	ug/L		6010B	3	10		1	05/12/2014	05/14/2014	05/17/2014	527
42-03	4203-LG1	7439-97-6	132	Mercury, Total	0.02	ug/L	U	7470A	0.02	0.1		1	05/12/2014	05/15/2014	05/16/2014	527
42-03	4203-LG1	14797-55-8	303	Nitrate as Nitrogen	30	ug/L	U	300	0.03	0.2		1	05/12/2014		05/14/2014	527
42-03	4203-LG1	12408-02-5	321	pH	6.75	PH		SM 4500-H+ B				1	05/12/2014		05/14/2014	527
42-03	4203-LG1	7782-49-2	183	Selenium, Total	1.1	ug/L	U	6020	1.1	2		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG1	7440-22-4	184	Silver, Total	0.06	ug/L	U	6020	0.06	0.5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG1		311	Solids, Total Dissolved (TDS)	144000	ug/L		160.1	10	10		1	05/12/2014		05/14/2014	527
42-03	4203-LG1	14808-79-8	315	Sulfate	5100	ug/L		300	0.2	1		1	05/12/2014		05/14/2014	527
42-03	4203-LG1	7440-66-6	213	Zinc, Total	4	ug/L	J	6020	1.6	5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG3	7440-38-2	14	Arsenic, Total	0.5	ug/L	U	6020	0.5	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG3	7440-39-3	15	Barium, Total	61.2	ug/L		6020	0.5	2		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG3		316	Biochemical Oxygen Demand (BOD)	4000	ug/L	UX	405.1	4	4		2	05/12/2014		05/14/2014	527
42-03	4203-LG3	7440-43-9	34	Cadmium, Total	0.1	ug/L	U	6020	0.1	0.4		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG3	7440-44-0	357	Carbon, Total Organic (TOC)	8100	ug/L		415.1	0.09	1		1	05/12/2014		05/27/2014	527
42-03	4203-LG3		317	Chemical Oxygen Demand, Total	16000	ug/L	U	SM21 5220 D	16	20		1	05/12/2014	05/14/2014	05/15/2014	527
42-03	4203-LG3	16887-00-6	301	Chloride	47900	ug/L		300	0.2	1		1	05/12/2014		05/14/2014	527
42-03	4203-LG3	7440-47-3	51	Chromium, Total	0.3	ug/L	J	6020	0.2	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG3		324	Conductivity at 25 Degrees Celsius	1650	uMHOS/cm		120.1	1	1		1	05/12/2014		05/15/2014	527
42-03	4203-LG3	7440-50-8	54	Copper, Total	0.5	ug/L	J	6020	0.3	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG3	16984-48-8	312	Fluoride	250	ug/L		300	0.02	0.2		1	05/12/2014		05/14/2014	527
42-03	4203-LG3		396	Halides, Total Organic (TOX)	100	ug/L	U	9020		0.1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG3	7439-89-6	340	Iron, Total	110	ug/L		6010B	3	100		1	05/12/2014	05/14/2014	05/17/2014	527
42-03	4203-LG3	7439-92-1	131	Lead, Total	0.12	ug/L	U	6020	0.12	0.5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG3	7439-96-5	342	Manganese, Total	871	ug/L		6010B	3	10		1	05/12/2014	05/14/2014	05/17/2014	527
42-03	4203-LG3	7439-97-6	132	Mercury, Total	0.02	ug/L	U	7470A	0.02	0.1		1	05/12/2014	05/15/2014	05/16/2014	527
42-03	4203-LG3	14797-55-8	303	Nitrate as Nitrogen	20400	ug/L	J	300	0.3	2		10	05/12/2014		05/14/2014	527
42-03	4203-LG3	12408-02-5	321	pH	6.97	PH		SM 4500-H+ B				1	05/12/2014		05/14/2014	527
42-03	4203-LG3	7782-49-2	183	Selenium, Total	1.1	ug/L	U	6020	1.1	2		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG3	7440-22-4	184	Silver, Total	0.06	ug/L	U	6020	0.06	0.5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG3		311	Solids, Total Dissolved (TDS)	1190000	ug/L		160.1	20	20		2	05/12/2014		05/14/2014	527
42-03	4203-LG3	14808-79-8	315	Sulfate	184000	ug/L		300	2	10		10	05/12/2014		05/14/2014	527
42-03	4203-LG3	7440-66-6	213	Zinc, Total	1.6	ug/L	U	6020	1.6	5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG5	7440-38-2	14	Arsenic, Total	5.4	ug/L		6020	0.5	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG5	7440-39-3	15	Barium, Total	88.4	ug/L		6020	0.5	2		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG5		316	Biochemical Oxygen Demand (BOD)	4000	ug/L	UX	405.1	4	4		2	05/12/2014		05/14/2014	527
42-03	4203-LG5	7440-43-9	34	Cadmium, Total	0.16	ug/L	J	6020	0.1	0.4		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG5	7440-44-0	357	Carbon, Total Organic (TOC)	25500	ug/L		415.1	0.09	1		1	05/12/2014		05/27/2014	527
42-03	4203-LG5		317	Chemical Oxygen Demand, Total	202000	ug/L		SM21 5220 D	16	20		1	05/12/2014	05/14/2014	05/15/2014	527
42-03	4203-LG5	16887-00-6	301	Chloride	1200	ug/L		300	0.2	1		1	05/12/2014		05/14/2014	527
42-03	4203-LG5	7440-47-3	51	Chromium, Total	7.3	ug/L		6020	0.2	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG5		324	Conductivity at 25 Degrees Celsius	245	uMHOS/cm		120.1	1	1		1	05/12/2014		05/15/2014	527
42-03	4203-LG5	7440-50-8	54	Copper, Total	6.7	ug/L		6020	0.3	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG5	16984-48-8	312	Fluoride	140	ug/L	J	300	0.02	0.2		1	05/12/2014		05/14/2014	527
42-03	4203-LG5		396	Halides, Total Organic (TOX)	100	ug/L	U	9020		0.1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG5	7439-89-6	340	Iron, Total	12400	ug/L		6010B	3	100		1	05/12/2014	05/14/2014	05/17/2014	527
42-03	4203-LG5	7439-92-1	131	Lead, Total	0.77	ug/L		6020	0.12	0.5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG5	7439-96-5	342	Manganese, Total	4940	ug/L		6010B	3	10		1	05/12/2014	05/14/2014	05/17/2014	527
42-03	4203-LG5	7439-97-6	132	Mercury, Total	0.02	ug/L	U	7470A	0.02	0.1		1	05/12/2014	05/15/2014	05/16/2014	527
42-03	4203-LG5	14797-55-8	303	Nitrate as Nitrogen	30	ug/L	U	300	0.03	0.2		1	05/12/2014		05/14/2014	527
42-03	4203-LG5	12408-02-5	321	pH	6.22	PH		SM 4500-H+ B				1	05/12/2014		05/14/2014	527
42-03	4203-LG5	7782-49-2	183	Selenium, Total	1.1	ug/L	U	6020	1.1	2		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG5	7440-22-4	184	Silver, Total	0.06	ug/L	U	6020	0.06	0.5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG5		311	Solids, Total Dissolved (TDS)	263000	ug/L		160.1	10	10		1	05/12/2014		05/14/2014	527
42-03	4203-LG5	14808-79-8	315	Sulfate	28400	ug/L		300	0.2	1		1	05/12/2014		05/14/2014	527
42-03	4203-LG5	7440-66-6	213	Zinc, Total	13.9	ug/L		6020	1.6	5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG6	7440-38-2	14	Arsenic, Total	0.5	ug/L	U	6020	0.5	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG6	7440-39-3	15	Barium, Total	432	ug/L		6020	0.5	2		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG6		316	Biochemical Oxygen Demand (BOD)	4000	ug/L	UX	405.1	4	4		2	05/12/2014		05/14/2014	527
42-03	4203-LG6	7440-43-9	34	Cadmium, Total	0.1	ug/L	U	6020	0.1	0.4		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG6	7440-44-0	357	Carbon, Total Organic (TOC)	14000	ug/L		415.1	0.09	1		1	05/12/2014		05/20/2014	527
42-03	4203-LG6		317	Chemical Oxygen Demand, Total	40000	ug/L		SM21 5220 D	16	20		1	05/12/2014	05/14/2014	05/15/2014	527
42-03	4203-LG6	16887-00-6	301	Chloride	61000	ug/L		300	2	10		10	05/12/2014		05/14/2014	527
42-03	4203-LG6	7440-47-3	51	Chromium, Total	2.6	ug/L		6020	0.2	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG6		324	Conductivity at 25 Degrees Celsius	2860	uMHOS/cm		120.1	1	1		1	05/12/2014		05/15/2014	527
42-03	4203-LG6	7440-50-8	54	Copper, Total	0.5	ug/L	J	6020	0.3	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG6	16984-48-8	312	Fluoride	320	ug/L		300	0.02	0.2		1	05/12/2014		05/14/2014	527
42-03	4203-LG6		396	Halides, Total Organic (TOX)	100	ug/L	U	9020		0.1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG6	7439-89-6	340	Iron, Total	730	ug/L		6010B	3	100		1	05/12/2014	05/14/2014	05/16/2014	527
42-03	4203-LG6	7439-92-1	131	Lead, Total	0.12	ug/L	U	6020	0.12	0.5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG6	7439-96-5	342	Manganese, Total	1820	ug/L		6010B	3	10		1	05/12/2014	05/14/2014	05/16/2014	527
42-03	4203-LG6	7439-97-6	132	Mercury, Total	0.02	ug/L	U	7470A	0.02	0.1		1	05/12/2014	05/15/2014	05/16/2014	527
42-03	4203-LG6	14797-55-8	303	Nitrate as Nitrogen	30	ug/L	U	300	0.03	0.2		1	05/12/2014		05/14/2014	527
42-03	4203-LG6	12408-02-5	321	pH	7.3	PH		SM 4500-H+ B				1	05/12/2014		05/14/2014	527
42-03	4203-LG6	7782-49-2	183	Selenium, Total	1.3	ug/L	J	6020	1.1	2		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG6	7440-22-4	184	Silver, Total	0.06	ug/L	U	6020	0.06	0.5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG6		311	Solids, Total Dissolved (TDS)	2100000	ug/L		160.1	40	40		4	05/12/2014		05/14/2014	527
42-03	4203-LG6	14808-79-8	315	Sulfate	134000	ug/L		300	2	10		10	05/12/2014		05/14/2014	527
42-03	4203-LG6	7440-66-6	213	Zinc, Total	1.6	ug/L	U	6020	1.6	5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG7	7440-38-2	14	Arsenic, Total	0.5	ug/L	U	6020	0.5	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG7	7440-39-3	15	Barium, Total	349	ug/L		6020	0.5	2		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG7		316	Biochemical Oxygen Demand (BOD)	4000	ug/L	UX	405.1	4	4		2	05/12/2014		05/14/2014	527
42-03	4203-LG7	7440-43-9	34	Cadmium, Total	0.1	ug/L	U	6020	0.1	0.4		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG7	7440-44-0	357	Carbon, Total Organic (TOC)	7000	ug/L		415.1	0.09	1		1	05/12/2014		05/27/2014	527
42-03	4203-LG7		317	Chemical Oxygen Demand, Total	16000	ug/L	U	SM21 5220 D	16	20		1	05/12/2014	05/14/2014	05/15/2014	527
42-03	4203-LG7	16887-00-6	301	Chloride	42100	ug/L		300	0.2	1		1	05/12/2014		05/14/2014	527
42-03	4203-LG7	7440-47-3	51	Chromium, Total	0.3	ug/L	J	6020	0.2	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG7		324	Conductivity at 25 Degrees Celsius	2180	uMHOS/cm		120.1	1	1		1	05/12/2014		05/15/2014	527
42-03	4203-LG7	7440-50-8	54	Copper, Total	1.2	ug/L		6020	0.3	1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG7	16984-48-8	312	Fluoride	220	ug/L		300	0.02	0.2		1	05/12/2014		05/14/2014	527
42-03	4203-LG7		396	Halides, Total Organic (TOX)	100	ug/L	U	9020		0.1		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG7	7439-89-6	340	Iron, Total	830	ug/L		6010B	3	100		1	05/12/2014	05/14/2014	05/17/2014	527
42-03	4203-LG7	7439-92-1	131	Lead, Total	0.12	ug/L	U	6020	0.12	0.5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG7	7439-96-5	342	Manganese, Total	2770	ug/L		6010B	3	10		1	05/12/2014	05/14/2014	05/17/2014	527
42-03	4203-LG7	7439-97-6	132	Mercury, Total	0.02	ug/L	U	7470A	0.02	0.1		1	05/12/2014	05/15/2014	05/16/2014	527
42-03	4203-LG7	14797-55-8	303	Nitrate as Nitrogen	1180	ug/L		300	0.03	0.2		1	05/12/2014		05/14/2014	527
42-03	4203-LG7	12408-02-5	321	pH	7.24	PH		SM 4500-H+ B				1	05/12/2014		05/14/2014	527
42-03	4203-LG7	7782-49-2	183	Selenium, Total	1.1	ug/L	U	6020	1.1	2		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG7	7440-22-4	184	Silver, Total	0.06	ug/L	U	6020	0.06	0.5		1	05/12/2014	05/15/2014	05/19/2014	527
42-03	4203-LG7		311	Solids, Total Dissolved (TDS)	1520000	ug/L		160.1	40	40		4	05/12/2014		05/14/2014	527
42-03	4203-LG7	14808-79-8	315	Sulfate	249000	ug/L		300	2	10		10	05/12/2014		05/14/2014	527
42-03	4203-LG7	7440-66-6	213	Zinc, Total	2.1	ug/L	J	6020	1.6	5		1	05/12/2014	05/15/2014	05/19/2014	527

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Groundwater Sampling Record

WELL No. LG-1	PROJECT # 20090383.14	LOCATION Roanoke Rapids, NC	DATE 5/12/14
SAMPLE No.	PROJECT NAME FP Roanoke Rapids	FIELD PERSONNEL/COMPANY R. Davis, J. Hughes	
SAMPLE TIME: 1345	SITE Low Ground LF	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): 6.54
Depth of Well (feet): 16.36
Water Column (feet): 9.8
Casing Volume (gallons): 1.59
Calculated Purge Volume (gallons): 4.79
Actual Purge Volume (gallons): 2.30

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
1231	0							
1234	—	16.18	6.68	2.25	-15.6	278	72.96	PURGE START
1245	0.5	15.38	5.22	0.20	27.8	213	22.89	7.67
1255	1.0	15.61	5.47	0.35	14.7	181	15.45	9.07
1305	1.4	15.85	5.66	0.43	1.4	181	12.61	9.91
1315	1.75	15.99	5.66	0.27	-1.2	185	9.26	10.62
1325	2.25	15.83	5.67	0.16	-9.1	188	7.63	11.28
								11.97

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	5/12/14
Turbidity	HF Scientific	2000	5/12/14
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		

Dup-1 collected Here

Start Purge - 1231
End purge - 1326
Sample - 1345

EARTHCON℠

Groundwater Sampling Record

WELL No. LG-3	PROJECT # 25.2009 0383.14	LOCATION Roanoke Rapids, NC	DATE 5/12/14
SAMPLE No.	PROJECT NAME JP Roanoke Rapids	FIELD PERSONNEL/COMPANY K. Davis, J Hughes	
SAMPLE TIME: 1100	SITE Lou Concord LF	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):	4.09	Measuring Point Elevation (feet):	
Depth of Well (feet):	19.83	Groundwater Surface Elevation:	
Water Column (feet):	15.74	LNAPL present:	thickness:
Casing Volume (gallons):	2.54	DNAPL present:	thickness:
Calculated Purge Volume (gallons):	7.7	Remarks:	
Actual Purge Volume (gallons):	2.30		

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
0952	0							
0955	—	16.70	6.25	3.36	45.2	1472	3.64	PURGE START 4.65
1005	0.4	16.04	5.61	0.72	82.2	1505	0.95	5.26
1015	0.9	16.66	5.84	0.42	70.3	1540	4.03	5.07
1025	1.25	16.49	6.15	0.33	54.5	1570	3.93	5.18
1035	1.74	16.93	6.09	0.23	58.1	1610	1.40	5.23
1045	2.2	16.97	6.20	0.19	52.9	1670	1.72	5.30

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	5/12/14
Turbidity	HF Scientific	20000	5/12/14
Peri Pump	Geopump		

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

Start Purge - 0952
End Purge - 1045
Sample - 1100

EARTHCON℠

Groundwater Sampling Record

WELL No. LG-5	PROJECT # 25.20090383.14	LOCATION Roanoke Rapids, NC	DATE 5/12/14
SAMPLE No.	PROJECT NAME JP Roanoke Rapids	FIELD PERSONNEL/COMPANY R. Davis, J. Hughes	
SAMPLE TIME: 0935	SITE Low Ground LF	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): 5.03
Depth of Well (feet): 18.98
Water Column (feet): 13.95
Casing Volume (gallons): 2.27
Calculated Purge Volume (gallons): 6.82
Actual Purge Volume (gallons): 2.20

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) UL

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	Dissolved Oxygen (mg/L)	ORP (mV)	CONDUCTIVITY (µs/cm)	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
0838	0							
0841	—	17.05	6.26	2.30	45.7	372	8.71	PURGE START
0850	0.4	17.21	5.02	0.44	96.0	282	9.39	5.87
0900	0.8	17.21	5.16	0.39	83.8	263	9.12	6.73
0910	1.4	17.16	5.18	0.40	25.2	260	6.33	6.97
0920	1.9	17.37	5.34	0.54	62.0	263	~~[illegible]~~ 5.37	7.27
								7.28

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	5/12/14
Turbidity	HF Scientific	20000	5/12/14
Peri Pump	Cole-Parmer		

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~~	HNO_3
	Metals	500ml HDPE	HNO_3	
	Various	500ml HDPE	—	

Start Purge – 0838
End purge – 0921
Sample – 0935

EARTHCON℠

Groundwater Sampling Record

WELL No. LG-6	PROJECT 25.20090383.14	LOCATION Roanoke Rapids, NC	DATE 5/12/14
SAMPLE No.	PROJECT NAME II Roanoke Rapids	FIELD PERSONNEL/COMPANY R. Davis, J. Hughes	
SAMPLE TIME: 0825	SITE Lou Ground LF	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): 7.58
Depth of Well (feet): 18.72
Water Column (feet): 11.14
Casing Volume (gallons): 1.81
Calculated Purge Volume (gallons): 5.45
Actual Purge Volume (gallons): 2.10

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) WC

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	Dissolved Oxygen (mg/L)	ORP (mV)	CONDUCTIVITY (µs/cm)	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
0725	0							
0732	~~[illegible]~~	17.78	6.17	3.01	152.4	2968	7.16	PURGE START 8.83
0740	0.5	17.75	6.14	0.83	154.7	2973	6.31	9.61
0750	1.0	17.78	6.23	0.51	142.5	2980	4.87	10.30
0800	1.5	17.84	6.31	0.39	103.6	2983	3.80	10.38
0810	1.9	17.94	6.35	0.30	66.8	2971	2.77	10.49

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	5/12/14
Turbidity	HF Scientific	20000	5/12/14
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 $Na_2S_2O_3$	
	Metals	500ml HDPE	HNO_3	
	Various	500ml HDPE	—	

Start Purge - 0725
End purge - 0811
Sample - 0825

EARTHCON℠

Groundwater Sampling Record

WELL No. LG-7	PROJECT # 25.20090383.14	LOCATION Roanoke Rapids, NC	DATE 5/12/14
SAMPLE No.	PROJECT NAME LF Roanoke Rapids	FIELD PERSONNEL/COMPANY K. Davis, J Hughes	
SAMPLE TIME: 1220	SITE Lowland LF	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):	4.93	Measuring Point Elevation (feet):	
Depth of Well (feet):	16.05	Groundwater Surface Elevation:	
Water Column (feet):	11.12	LNAPL present:	thickness:
Casing Volume (gallons):	1.81	DNAPL present:	thickness:
Calculated Purge Volume (gallons):	5.44	Remarks:	
Actual Purge Volume (gallons):	2.25		

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

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	Dissolved Oxygen (mg/L)	ORP (mV)	CONDUCTIVITY (µs/cm)	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
1122	0							PURGE START
1124	–	15.60	6.07	4.26	87.8	2138	41.63	5.25
1135	0.5	15.15	6.05	0.96	118.5	2146	46.01	5.25
1145	1.1	15.04	6.35	0.88	101.2	2210	16.02	5.26
1155	1.6	15.17	6.47	0.95	95.1	2219	8.83	5.27
1205	2.2	15.15	6.50	0.88	92.2	2217	5.59	5.27

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	5/12/14
Turbidity	HF Scientific	20000	5/12/14

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~~	HNO_3
	Metals	500ml HDPE	HNO_3	
	Various	500ml HDPE	—	

Start purge - 1122
End purge - 1205
Sample - 1220

monday 5/12/14

0605 - Cal. brare equipment - everything calibrated OK. PH - 4,7+10 Turb - OK.
- Picked up Ice
0710 - Arrived on Site - Met up Dr. Hughes
0720 - Setup on LG-6 DTW - 7.58'
0725 - Start purge
0811 - End purge
0825 - Sample LG-6

0835 - Setup on LG-5 DTW - 5.03
0838 - Start purge
0921 - End purge
0935 - Sample LG-6

20-25' - Distance From SE Prop. Area to River
110' - Distance From NE Prop. Area to River

0943 - LG-4 DTW - 7.67'

0945 - Setup on LG-3 DTW = 4.09
0952 - Begin Purge
1045 - End purge
1100 - Sample LG-3

1106 - LG-2 DTW = 9.87

1115 - Setup on LG-7 DTW - 4.93
1122 - Begin Purge
1205 - End purge
1220 - Sample LG-7

1230 - Setup on LG-1 DTW - 6.56
1231 - Begin Purge
1326 - End Purge
1345 - Sample LG-1 Dup-1 collected Here
1355 - Depart Site
1415 - Pack Samples
1430 - Drop @ Lynch office (Fed Ex pick up)
- Elevation @ Boat Ramp is 5.63 below top mark

HWD

Water in the Rain

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

Project Name: JP Roanoke Roads

Project Number: 25.20090383.14

Project Manager: Pete Ramsey

Email Address: PRamsey@EarthCon.com

Company/Address: EarthCon Consultants, 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)

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	TOC	COD	TOX	Metals	Vanadium	REMARKS/ ALTERNATE DESCRIPTION
PRESERVATIVE						1	3	3	2	0	
LG-6		5/12/14	0825	GW	6	2	1	1	1	1	
LG-5			0935		6	2	1	1	1	1	
LG-3			1100		6	2	1	1	1	1	
LG-7			1220		6	2	1	1	1	1	
DUP-1			—		6	2	1	1	1	1	
LG-1			1345		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: Kent M Davis	Printed Name: Tessel	Printed Name	Printed Name	Printed Name	Printed Name
Firm: EarthCon	Firm	Firm	Firm	Firm	Firm
Date/Time: 5/12/14 1530	Date/Time: 5/12/14 1530	Date/Time	Date/Time	Date/Time	Date/Time

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

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June 10, 2014

Service Request No:J1403453

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

Laboratory Results for: IP Roanake Rapids

Dear Mr.Ramsey,

Enclosed are the results of the sample(s) submitted to our laboratory May 13, 2014
For your reference, these analyses have been assigned our service request number **J1403453.**

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 ALS Environmental 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 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	12/31/2014
Virginia Environmental Accreditation Program	460191	12/14/2014
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	5/31/2015
Maine Department of Health and Human Services	2011006	2/3/2015
Department of Defense	66206	11/1/2014
Pennsylvania Department of Environmental Protection	68-04835	8/31/2014

Data Qualifiers

Lab 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.

Client: EarthCon Site Services Inc **Service Request:**J1403453
Project: IP Roanake Rapids/25.20090383.14

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
J1403453-001	LG-6	5/12/2014	0825
J1403453-002	LG-5	5/12/2014	0935
J1403453-003	LG-3	5/12/2014	1100
J1403453-004	LG-7	5/12/2014	1220
J1403453-005	DUP-1	5/12/2014	0000
J1403453-006	LG-1	5/12/2014	1345

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dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project:	IP Roanake Rapids/25.20090383.14	**Date Collected:**	05/12/14 08:25
Sample Matrix:	Water	**Date Received:**	05/13/14 07:50
Sample Name:	LG-6	**Basis:**	NA
Lab Code:	J1403453-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**4.0**	UX	mg/L	4.0	4.0	2	05/14/14	NA	
Carbon, Total Organic (TOC)	415.1	**14.0**		mg/L	1.0	0.09	1	05/20/14	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**40**		mg/L	20	16	1	05/15/14	05/14/14	
Chloride	300.0	**61**		mg/L	10	2	10	05/23/14	NA	
Conductivity at 25 Degrees Celsius	120.1	**2860**		uMHOS/cm	1.0	1.0	1	05/15/14	NA	
Fluoride	300.0	**0.32**		mg/L	0.20	0.02	1	05/14/14	NA	
Nitrate as Nitrogen	300.0	0.03	U	mg/L	0.20	0.03	1	05/14/14	NA	
pH	SM 4500-H+ B	**7.30**		pH Units	-	-	1	05/14/14	NA	H
Solids, Total Dissolved (TDS)	160.1	**2100**		mg/L	40	40	4	05/14/14	NA	
Sulfate	300.0	**134**		mg/L	10	2	10	05/23/14	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project:	IP Roanake Rapids/25.20090383.14	**Date Collected:**	05/12/14 09:35
Sample Matrix:	Water	**Date Received:**	05/13/14 07:50
Sample Name:	LG-5	**Basis:**	NA
Lab Code:	J1403453-002		

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**4.0**	UX	mg/L	4.0	4.0	2	05/14/14	NA	
Carbon, Total Organic (TOC)	415.1	**25.5**		mg/L	1.0	0.09	1	05/27/14	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**202**		mg/L	20	16	1	05/15/14	05/14/14	
Chloride	300.0	**1.2**		mg/L	1.0	0.2	1	05/14/14	NA	
Conductivity at 25 Degrees Celsius	120.1	**245**		uMHOS/cm	1.0	1.0	1	05/15/14	NA	
Fluoride	300.0	**0.14**	J	mg/L	0.20	0.02	1	05/14/14	NA	
Nitrate as Nitrogen	300.0	0.03	U	mg/L	0.20	0.03	1	05/14/14	NA	
pH	SM 4500-H+ B	**6.22**		pH Units	-	-	1	05/14/14	NA	H
Solids, Total Dissolved (TDS)	160.1	**263**		mg/L	10	10	1	05/14/14	NA	
Sulfate	300.0	**28.4**		mg/L	1.0	0.2	1	05/14/14	NA	

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dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project:	IP Roanake Rapids/25.20090383.14	**Date Collected:**	05/12/14 11:00
Sample Matrix:	Water	**Date Received:**	05/13/14 07:50
Sample Name:	LG-3	**Basis:**	NA
Lab Code:	J1403453-003		

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**4.0**	UX	mg/L	4.0	4.0	2	05/14/14	NA	
Carbon, Total Organic (TOC)	415.1	**8.1**		mg/L	1.0	0.09	1	05/27/14	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	16	U	mg/L	20	16	1	05/15/14	05/14/14	
Chloride	300.0	**47.9**		mg/L	1.0	0.2	1	05/14/14	NA	
Conductivity at 25 Degrees Celsius	120.1	**1650**		uMHOS/cm	1.0	1.0	1	05/15/14	NA	
Fluoride	300.0	**0.25**		mg/L	0.20	0.02	1	05/14/14	NA	
Nitrate as Nitrogen	300.0	**20.4**		mg/L	2.0	0.3	10	05/23/14	NA	*
pH	SM 4500-H+ B	**6.97**		pH Units	-	-	1	05/14/14	NA	H
Solids, Total Dissolved (TDS)	160.1	**1190**		mg/L	20	20	2	05/14/14	NA	
Sulfate	300.0	**184**		mg/L	10	2	10	05/23/14	NA	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project:	IP Roanake Rapids/25.20090383.14	**Date Collected:**	05/12/14 12:20
Sample Matrix:	Water	**Date Received:**	05/13/14 07:50
Sample Name:	LG-7	**Basis:**	NA
Lab Code:	J1403453-004		

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**4.0**	**UX**	mg/L	4.0	4.0	2	05/14/14	NA	
Carbon, Total Organic (TOC)	415.1	**7.0**		mg/L	1.0	0.09	1	05/27/14	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	16	U	mg/L	20	16	1	05/15/14	05/14/14	
Chloride	300.0	**42.1**		mg/L	1.0	0.2	1	05/14/14	NA	
Conductivity at 25 Degrees Celsius	120.1	**2180**		uMHOS/cm	1.0	1.0	1	05/15/14	NA	
Fluoride	300.0	**0.22**		mg/L	0.20	0.02	1	05/14/14	NA	
Nitrate as Nitrogen	300.0	**1.18**		mg/L	0.20	0.03	1	05/14/14	NA	
pH	SM 4500-H+ B	**7.24**		pH Units	-	-	1	05/14/14	NA	H
Solids, Total Dissolved (TDS)	160.1	**1520**		mg/L	40	40	4	05/14/14	NA	
Sulfate	300.0	**249**		mg/L	10	2	10	05/23/14	NA	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project:	IP Roanake Rapids/25.20090383.14	**Date Collected:**	05/12/14 00:00
Sample Matrix:	Water	**Date Received:**	05/13/14 07:50
Sample Name:	DUP-1	**Basis:**	NA
Lab Code:	J1403453-005		

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**4.0**	UX	mg/L	4.0	4.0	2	05/14/14	NA	*
Carbon, Total Organic (TOC)	415.1	**12.3**		mg/L	1.0	0.09	1	05/27/14	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**22**		mg/L	20	16	1	05/15/14	05/14/14	
Chloride	300.0	**1.5**		mg/L	1.0	0.2	1	05/14/14	NA	
Conductivity at 25 Degrees Celsius	120.1	**194**		uMHOS/cm	1.0	1.0	1	05/15/14	NA	
Fluoride	300.0	**0.15**	J	mg/L	0.20	0.02	1	05/14/14	NA	
Nitrate as Nitrogen	300.0	0.03	U	mg/L	0.20	0.03	1	05/14/14	NA	*
pH	SM 4500-H+ B	**6.72**		pH Units	-	-	1	05/14/14	NA	H
Solids, Total Dissolved (TDS)	160.1	**150**		mg/L	10	10	1	05/14/14	NA	
Sulfate	300.0	**4.5**		mg/L	1.0	0.2	1	05/14/14	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project:	IP Roanake Rapids/25.20090383.14	**Date Collected:**	05/12/14 13:45
Sample Matrix:	Water	**Date Received:**	05/13/14 07:50
Sample Name:	LG-1	**Basis:**	NA
Lab Code:	J1403453-006		

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**4.0**	UX	mg/L	4.0	4.0	2	05/14/14	NA	
Carbon, Total Organic (TOC)	415.1	**12.0**		mg/L	1.0	0.09	1	05/27/14	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**30**		mg/L	20	16	1	05/15/14	05/14/14	
Chloride	300.0	**1.5**		mg/L	1.0	0.2	1	05/14/14	NA	
Conductivity at 25 Degrees Celsius	120.1	**191**		uMHOS/cm	1.0	1.0	1	05/15/14	NA	
Fluoride	300.0	**0.15**	J	mg/L	0.20	0.02	1	05/14/14	NA	
Nitrate as Nitrogen	300.0	0.03	U	mg/L	0.20	0.03	1	05/14/14	NA	
pH	SM 4500-H+ B	**6.75**		pH Units	-	-	1	05/14/14	NA	H
Solids, Total Dissolved (TDS)	160.1	**144**		mg/L	10	10	1	05/14/14	NA	
Sulfate	300.0	**5.1**		mg/L	1.0	0.2	1	05/14/14	NA	

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Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project:	IP Roanake Rapids/25.20090383.14	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1403453-MB2		

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5	U	ug/L	1.0	0.5	1	05/19/14 22:20	05/15/14	
Barium, Total Recoverable	6020	0.5	U	ug/L	2.0	0.5	1	05/19/14 22:20	05/15/14	
Cadmium, Total Recoverable	6020	0.10	U	ug/L	0.40	0.10	1	05/19/14 22:20	05/15/14	
Chromium, Total Recoverable	6020	0.2	U	ug/L	1.0	0.2	1	05/19/14 22:20	05/15/14	
Copper, Total Recoverable	6020	0.3	U	ug/L	1.0	0.3	1	05/19/14 22:20	05/15/14	
Lead, Total Recoverable	6020	0.12	U	ug/L	0.50	0.12	1	05/19/14 22:20	05/15/14	
Selenium, Total Recoverable	6020	1.1	U	ug/L	2.0	1.1	1	05/19/14 22:20	05/15/14	
Silver, Total Recoverable	6020	0.06	U	ug/L	0.50	0.06	1	05/19/14 22:20	05/15/14	
Zinc, Total Recoverable	6020	1.6	U	ug/L	5.0	1.6	1	05/19/14 22:20	05/15/14	

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project:	IP Roanake Rapids/25.20090383.14	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1403453-MB2		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Q
Carbon, Total Organic (TOC)	415.1	**0.1 J**	mg/L	1.0	0.09	1	05/27/14 18:38	
Chloride	300.0	0.2 U	mg/L	1.0	0.2	1	05/23/14 01:33	
Nitrate as Nitrogen	300.0	0.03 U	mg/L	0.20	0.03	1	05/23/14 01:33	
Sulfate	300.0	0.2 U	mg/L	1.0	0.2	1	05/23/14 01:33	

ALS Group USA, Corp.
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QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project:	IP Roanake Rapids/25.20090383.14	**Date Collected:**	05/12/14
Sample Matrix:	Water	**Date Received:**	05/13/14
		Date Analyzed:	5/19/14

Matrix Spike Summary
Inorganic Parameters

Sample Name:	LG-1	**Units:**	ug/L
Lab Code:	J1403453-006	**Basis:**	NA

Matrix Spike
J1403453-006MS

Analyte Name	Method	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Total Recoverable	6020	0.5	51.4	50.0	103	75-125
Barium, Total Recoverable	6020	109	213	100	104	75-125
Cadmium, Total Recoverable	6020	0.10	19.9	20.0	99	75-125
Chromium, Total Recoverable	6020	2.0	52.8	50.0	102	75-125
Copper, Total Recoverable	6020	6.4	56.2	50.0	100	75-125
Lead, Total Recoverable	6020	3.28	28.6	25.0	101	75-125
Selenium, Total Recoverable	6020	1.1	77.9	100	78	75-125
Silver, Total Recoverable	6020	0.06	24.9	25.0	100	75-125
Zinc, Total Recoverable	6020	4.0	255	250	100	75-125

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

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

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

Client: EarthCon Site Services Inc
Project: IP Roanake Rapids/25.20090383.14
Sample Matrix: Water

Service Request:J1403453
Date Analyzed:5/19/14

Lab Control Sample Summary
Inorganic Parameters

Units:ug/L
Basis:NA

Lab Control Sample
J1403453-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Total Recoverable	6020	49.8	50.0	100	80-120
Barium, Total Recoverable	6020	99.2	100	99	80-120
Cadmium, Total Recoverable	6020	20.1	20.0	100	80-120
Chromium, Total Recoverable	6020	49.6	50.0	99	80-120
Copper, Total Recoverable	6020	49.9	50.0	100	80-120
Lead, Total Recoverable	6020	25.1	25.0	100	80-120
Selenium, Total Recoverable	6020	99.1	100	99	80-120
Silver, Total Recoverable	6020	25.3	25.0	101	80-120
Zinc, Total Recoverable	6020	252	250	101	80-120

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project	IP Roanake Rapids/25.20090383.14	**Date Collected:**	05/12/14
Sample Matrix:	Water	**Date Received:**	05/13/14
		Date Analyzed:	05/15/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	LG-6	**Units:**	uMHOS/cm
Lab Code:	J1403453-001	**Basis:**	NA

Analyte Name	Analysis Method	PQL	MDL	Sample Result	Duplicate Sample J1403453-001DUP Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	120.1	1.0	1.0	2860	2800	2830	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	**Service Request:**	J1403453
Project	IP Roanake Rapids/25.20090383.14	**Date Collected:**	05/12/14
Sample Matrix:	Water	**Date Received:**	05/13/14
		Date Analyzed:	05/27/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	LG-7	**Units:**	mg/L
Lab Code:	J1403453-004	**Basis:**	NA

Analyte Name	Analysis Method	PQL	MDL	Sample Result	Duplicate Sample J1403453-004DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic (TOC)	415.1	1.0	0.09	7.0	7.0	6.99	<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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QA/QC Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project:	IP Roanake Rapids/25.20090383.14	**Date Collected:**	05/12/14
Sample Matrix:	Water	**Date Received:**	05/13/14
		Date Analyzed:	05/27/14

Matrix Spike Summary
Carbon, Total Organic (TOC)

Sample Name:	LG-7	**Units:**	mg/L
Lab Code:	J1403453-004	**Basis:**	NA
Analysis Method:	415.1		

Matrix Spike
J1403453-004MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC)	7.0	55.7	50.0	98	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
Project: IP Roanake Rapids/25.20090383.14
Sample Matrix: Water

Service Request:J1403453
Date Analyzed:5/15/14

Lab Control Sample Summary
General Chemistry Parameters

Units:uMHOS/cm
Basis:NA

Lab Control Sample
J1403453-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Conductivity at 25 Degrees Celsius	120.1	954	1000	95	90-110

ALS Environmental

Cooler Receipt Form

Client: Earth Con Service Request #: J1403453

Project: IP Roanoke Rapids

Cooler received on 5-13-14 and opened on 5-13-14 by TB

COURIER: ALS UPS (FEDEX) Client Other _____ Airbill # 8009 0393 0210

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)	2.2°C		
5	Thermometer ID	T91		
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
1	LG6 (500ml)	HNO3	13-651	2.5	TB 5-13-14 0930
3	LG3 (500ml)	HNO3	13-651	2	TB 5-13-14 0935
4	LG7 (500ml)	HNO3	13-651	2	TB 5-13-14 0939
	LG6 (250ml)	HNO3	13-651	1.5	TB 5-13-14 0941
	LG7 (250ml)	HNO3	13-651	2	TB 5-13-14 0945
	LG6	H2SO4	81013-31	0.5	TB 5-13-14 0952

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

Client approval to run samples if discrepancies noted: Date:

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

Workorder Sample Summary

WO#: **14051494**

10-Jun-14

CLIENT: ALS Environmental, Inc.
Project: J1403453

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
14051494-001	LG-6		5/12/2014 8:25:00 AM	5/14/2014 10:00:00 AM	Non-Potable Water
14051494-002	LG-5		5/12/2014 9:35:00 AM	5/14/2014 10:00:00 AM	Non-Potable Water
14051494-003	LG-3		5/12/2014 11:00:00 AM	5/14/2014 10:00:00 AM	Non-Potable Water
14051494-004	LG-7		5/12/2014 12:20:00 PM	5/14/2014 10:00:00 AM	Non-Potable Water
14051494-005	DUP-1		5/12/2014	5/14/2014 10:00:00 AM	Non-Potable Water
14051494-006	LG-1		5/12/2014 1:45:00 PM	5/14/2014 10:00:00 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

QC SUMMARY REPORT

WO#: **14051494**

10-Jun-14

Client: ALS Environmental, Inc.
Project: J1403453

TestCode: **TOX_NPW(9020)**

Sample ID: **MB-R18394** SampType: **MBLK** TestCode: **TOX_NPW(90** Units: **mg/L** Prep Date: RunNo: **18394**
Client ID: **PBW** Batch ID: **R18394** TestNo: **SW9020** Analysis Date: **5/21/2014** SeqNo: **222244**

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-R18394** SampType: **LCS** TestCode: **TOX_NPW(90** Units: **mg/L** Prep Date: RunNo: **18394**
Client ID: **LCSW** Batch ID: **R18394** TestNo: **SW9020** Analysis Date: **5/21/2014** SeqNo: **222245**

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	70	130				

Sample ID: **LCSD-R18394** SampType: **LCSD** TestCode: **TOX_NPW(90** Units: **mg/L** Prep Date: RunNo: **18394**
Client ID: **LCSS02** Batch ID: **R18394** TestNo: **SW9020** Analysis Date: **5/21/2014** SeqNo: **222246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Halides	0.31	0.10	0.3300	0	93.9	0	0	0.3400	9.23	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

Rev. 12
Date: 07/27/13

Summit Environmental Technologies, Inc.
Cooler Receipt Form

Initials of person inspecting cooler and samples: [illegible]

Client: ARS Env

Order Number: _____

Date Received: 5-14-14 Time Received: 1000 Date cooler(s) opened and samples inspected: 5/15/15

Number of Coolers/Boxes: _____ N/A

Shipper: FED EX UPS DHL Airborne US Postal Walk-in Pickup Other: _____

Packaging: Peanuts Bubble Wrap Paper Foam None Other: _____

Tape on cooler/box.	Y	N	N/A
Custody Seals intact	Y	N	N/A
C-O-C in place	Y	N	N/A
Ice ✓ Blue ice _____	present / absent / melted		N/A
Sample Temperature IR Gun #16602459: CF 4.0 °C	_____ °C		N/A
Radiological Testing Instrument serial #35127 (see page 2 for scan results)	Y	N	N/A

**Use 1 sheet per sample for Radiological Testing. If sample is HOT, the Radiological Safety Officer must be notified immediately.

C-O-C filled out properly	Y	N	N/A
Samples in separate bags	Y	N	N/A
Sample containers intact*	Y	N	N/A

*If no, list broken sample(s): _____

Sample label(s) complete (ID, date, etc.)	Y	N	N/A
Label(s) agree with C-O-C	Y	N	N/A
Correct containers used	Y	N	N/A
Sufficient sample received	Y	N	N/A
Bubbles absent from 40 mL vials**	Y	N	N/A

** Samples with bubbles <6mm are acceptable. Indicate bubble size if >6mm. _____

Was client contacted about samples	Y	N
Will client send new samples	Y	N

Client contact: _____

Date/Time: _____

Logged in by: _____

Comments: _____

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Memorandum

Date:	June 11, 2014
To:	Pete Ramsey, 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:	May 14, 2014
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) of Jacksonville, Florida, with the exception of the total organic halide (TOX) analyses that were subcontracted to Summit Environmental Technologies, Inc., of Cuyahoga, Ohio.

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

Data qualifier flags have been added to the sample results in the laboratory reports used for validation and the project data tables. In cases where a result is qualified more than once, the most stringent qualifier has been applied to the data.

Table 1 – Sample Data Reviewed

Sample ID	Laboratory ID	Total Metals[a]	Water Quality Parameters[b]
LG-6	J1403453-001	X	X
LG-5	J1403453-002	X	X
LG-3	J1403453-003	X	X
LG-7	J1403453-004	X	X
DUP-1	J1403453-005	X	X
LG-1	J1403453-006	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, except as noted below, were properly preserved.

- The preservation pH of the metals aliquots of samples LG-3, LG-6, and LG-7 and the chemical oxygen demand (COD) and total organic carbon (TOC) aliquots of sample LG-6 were not less than 2 as required. The sample aliquots were acidified upon receipt at the laboratory. Data qualifiers are not required.

- The total organic halides (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 in 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.

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2.2.2 Blank Analyses

2.2.2.1 Method Blanks

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

2.2.2.2 Field Blanks

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

2.2.3 Laboratory Control Sample Analyses

LCSs were analyzed at the required frequency of one per digestion batch. The recovery values are within the Functional Guidelines criteria of 80 to 120 percent.

2.2.4 Matrix Spike Analyses

Matrix spikes were analyzed as required. The recovery and RPD values for the MS/MSD analysis of samples LG-1 and LG-6 are within the laboratory QC limits.

2.2.5 Laboratory Duplicate Analyses

Duplicate analyzed were not reported with the samples as noted below.

- Laboratory duplicate results were not reported. Data qualifiers are not required due to a lack of laboratory QC results.

2.2.6 Laboratory Reporting Limits

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

2.2.7 Field Duplicates

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

Parameter	Units	LG-1 Sample Result	DUP-1 Duplicate Result	RPD
Total Barium	µg/L	109	110	0.9
Total Chromium	µg/L	2.0	2.2	9.5
Total Copper	µg/L	6.4	6.0	6.4
Total Iron	µg/L	4580	4370	4.7
Total Lead	µg/L	3.28	2.83	15
Total Manganese	µg/L	623	624	0.2
Total zinc	µg/L	4.0	3.7	7.8

2.2.8 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 without qualification.

2.3 Water Quality Parameter 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

With one exception, 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.

- The diluted nitrate analysis of sample LG-3 was preformed past the 48-hour hold time. The positive nitrate result of sample LG-3 is qualified as estimated (J) as shown below and in Table 3.

Sample ID	Analyte	Qualifier	Quality Control Exceedance
LG-3	Nitrate	J	Analysis hold time exceeded

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, with two exceptions.

- Total organic carbon was detected in both method blanks associated with the samples at 0.1 mg/L each. Data qualifiers are not required because the TOC concentrations in the samples are greater than five times the method blank concentrations.

2.3.2.2 Field Blanks

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

2.3.3 Laboratory Control Sample Analyses

LCSs or LCS/LCSDs were analyzed at the required frequency of one per batch. The recovery and RPD values are within the laboratory QC limits.

2.3.4 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 reported for TOX. Data qualifiers are not required based on a lack of laboratory QC samples. Note that the LCS/LCSD results are acceptable, demonstrating the analytical system is in-control.

2.3.5 Laboratory 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 reported for TOX. Data qualifiers are not required due to a lack of laboratory QC results. Note that the precision of the field duplicate and LCS/LCSD results are acceptable, indicating acceptable analytical system precision.

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.

- The sample dilution series in the BOD analyses of the samples did not meet the oxygen depletion criteria. The BOD reporting limits for the samples are elevated.

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.

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Parameter	Units	LG-1 Sample Result	DUP-1 Duplicate Result	RPD
Total organic carbon (TOC)	mg/L	12.0	12.3	2.5
Chemical oxygen demand (COD)	mg/L	30	22	31
Chloride	mg/L	1.5	1.5	0
Conductivity	umhos/cm	191	194	1.6
Fluoride	mg/L	0.15	0.15	0
Total dissolved solids (TDS)	mg/L	144	150	4.1
Sulfate	mg/L	5.1	4.5	12
Total organic halides (TOX)	mg/L	0.16	0.15	6.5

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.

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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 result was qualified during the review of this data set.

Sample ID	Analyte	Qualifier	Reason for Qualification
LG-3	Nitrate	J	Analysis hold time exceeded

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project:	IP Roanake Rapids/25.20090383.14	**Date Collected:**	05/12/14 08:25
Sample Matrix:	Water	**Date Received:**	05/13/14 07:50
Sample Name:	LG-6	**Basis:**	NA
Lab Code:	J1403453-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	05/19/14 20:28	05/15/14	
Barium, Total Recoverable	6020	**432**	ug/L	2.0	0.5	1	05/19/14 20:28	05/15/14	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	05/19/14 20:28	05/15/14	
Chromium, Total Recoverable	6020	**2.6**	ug/L	1.0	0.2	1	05/19/14 20:28	05/15/14	
Copper, Total Recoverable	6020	**0.5 J**	ug/L	1.0	0.3	1	05/19/14 20:28	05/15/14	
Iron, Total Recoverable	6010B	**730**	ug/L	100	3	1	05/16/14 23:54	05/14/14	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	05/19/14 20:28	05/15/14	
Manganese, Total Recoverable	6010B	**1820**	ug/L	10	3	1	05/16/14 23:55	05/14/14	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	05/16/14 15:31	05/15/14	
Selenium, Total Recoverable	6020	**1.3 J**	ug/L	2.0	1.1	1	05/19/14 20:28	05/15/14	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	05/19/14 20:28	05/15/14	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	05/19/14 20:28	05/15/14	

KP 6/10/14

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Analytical Report

Client: EarthCon Site Services Inc
Project: IP Roanake Rapids/25.20090383.14
Sample Matrix: Water

Service Request: J1403453
Date Collected: 05/12/14 08:25
Date Received: 05/13/14 07:50

Sample Name: LG-6
Lab Code: J1403453-001

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**4.0**	UX	mg/L	4.0	4.0	2	05/14/14	NA	
Carbon, Total Organic (TOC)	415.1	**14.0**		mg/L	1.0	0.09	1	05/20/14	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**40**		mg/L	20	16	1	05/15/14	05/14/14	
Chloride	300.0	**61**		mg/L	10	2	10	05/23/14	NA	
Conductivity at 25 Degrees Celsius	120.1	**2860**		uMHOS/cm	1.0	1.0	1	05/15/14	NA	
Fluoride	300.0	**0.32**		mg/L	0.20	0.02	1	05/14/14	NA	
Nitrate as Nitrogen	300.0	0.03	U	mg/L	0.20	0.03	1	05/14/14	NA	
pH	SM 4500-H+ B	**7.30**		pH Units	-	-	1	05/14/14	NA	H
Solids, Total Dissolved (TDS)	160.1	**2100**		mg/L	40	40	4	05/14/14	NA	
Sulfate	300.0	**134**		mg/L	10	2	10	05/23/14	NA	

KP 6.10.14

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: EarthCon Site Services Inc
Project: IP Roanake Rapids/25.20090383.14
Sample Matrix: Water

Service Request: J1403453
Date Collected: 05/12/14 09:35
Date Received: 05/13/14 07:50

Sample Name: LG-5
Lab Code: J1403453-002

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	**5.4**	ug/L	1.0	0.5	1	05/19/14 20:33	05/15/14	
Barium, Total Recoverable	6020	**88.4**	ug/L	2.0	0.5	1	05/19/14 20:33	05/15/14	
Cadmium, Total Recoverable	6020	**0.16** J	ug/L	0.40	0.10	1	05/19/14 20:33	05/15/14	
Chromium, Total Recoverable	6020	**7.3**	ug/L	1.0	0.2	1	05/19/14 20:33	05/15/14	
Copper, Total Recoverable	6020	**6.7**	ug/L	1.0	0.3	1	05/19/14 20:33	05/15/14	
Iron, Total Recoverable	6010B	**12400**	ug/L	100	3	1	05/17/14 00:32	05/14/14	
Lead, Total Recoverable	6020	**0.77**	ug/L	0.50	0.12	1	05/19/14 20:33	05/15/14	
Manganese, Total Recoverable	6010B	**4940**	ug/L	10	3	1	05/17/14 00:33	05/14/14	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	05/16/14 15:39	05/15/14	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	05/19/14 20:33	05/15/14	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	05/19/14 20:33	05/15/14	
Zinc, Total Recoverable	6020	**13.9**	ug/L	5.0	1.6	1	05/19/14 20:33	05/15/14	

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Analytical Report

Client: EarthCon Site Services Inc
Project: IP Roanake Rapids/25.20090383.14
Sample Matrix: Water

Service Request: J1403453
Date Collected: 05/12/14 09:35
Date Received: 05/13/14 07:50

Sample Name: LG-5
Lab Code: J1403453-002

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**4.0**	UX	mg/L	4.0	4.0	2	05/14/14	NA	
Carbon, Total Organic (TOC)	415.1	**25.5**		mg/L	1.0	0.09	1	05/27/14	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**202**		mg/L	20	16	1	05/15/14	05/14/14	
Chloride	300.0	**1.2**		mg/L	1.0	0.2	1	05/14/14	NA	
Conductivity at 25 Degrees Celsius	120.1	**245**		uMHOS/cm	1.0	1.0	1	05/15/14	NA	
Fluoride	300.0	**0.14**	J	mg/L	0.20	0.02	1	05/14/14	NA	
Nitrate as Nitrogen	300.0	0.03	U	mg/L	0.20	0.03	1	05/14/14	NA	
pH	SM 4500-H+ B	**6.22**		pH Units	-	-	1	05/14/14	NA	H
Solids, Total Dissolved (TDS)	160.1	**263**		mg/L	10	10	1	05/14/14	NA	
Sulfate	300.0	**28.4**		mg/L	1.0	0.2	1	05/14/14	NA	

KP 6-10-14

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Analytical Report

Client: EarthCon Site Services Inc
Project: IP Roanake Rapids/25.20090383.14
Sample Matrix: Water

Service Request: J1403453
Date Collected: 05/12/14 11:00
Date Received: 05/13/14 07:50

Sample Name: LG-3
Lab Code: J1403453-003

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	05/19/14 20:38	05/15/14	
Barium, Total Recoverable	6020	**61.2**	ug/L	2.0	0.5	1	05/19/14 20:38	05/15/14	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	05/19/14 20:38	05/15/14	
Chromium, Total Recoverable	6020	**0.3 J**	ug/L	1.0	0.2	1	05/19/14 20:38	05/15/14	
Copper, Total Recoverable	6020	**0.5 J**	ug/L	1.0	0.3	1	05/19/14 20:38	05/15/14	
Iron, Total Recoverable	6010B	**110**	ug/L	100	3	1	05/17/14 00:37	05/14/14	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	05/19/14 20:38	05/15/14	
Manganese, Total Recoverable	6010B	**871**	ug/L	10	3	1	05/17/14 00:38	05/14/14	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	05/16/14 15:43	05/15/14	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	05/19/14 20:38	05/15/14	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	05/19/14 20:38	05/15/14	
Zinc, Total Recoverable	6020	1.6 U	ug/L	5.0	1.6	1	05/19/14 20:38	05/15/14	

KP 6-10-14

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: EarthCon Site Services Inc
Project: IP Roanake Rapids/25.20090383.14
Sample Matrix: Water

Service Request: J1403453
Date Collected: 05/12/14 11:00
Date Received: 05/13/14 07:50

Sample Name: LG-3
Lab Code: J1403453-003

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**4.0** UX	mg/L	4.0	4.0	2	05/14/14	NA	
Carbon, Total Organic (TOC)	415.1	**8.1**	mg/L	1.0	0.09	1	05/27/14	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	16 U	mg/L	20	16	1	05/15/14	05/14/14	
Chloride	300.0	**47.9**	mg/L	1.0	0.2	1	05/14/14	NA	
Conductivity at 25 Degrees Celsius	120.1	**1650**	uMHOS/cm	1.0	1.0	1	05/15/14	NA	
Fluoride	300.0	**0.25**	mg/L	0.20	0.02	1	05/14/14	NA	
Nitrate as Nitrogen	300.0	**20.4** J	mg/L	2.0	0.3	10	05/23/14	NA	*
pH	SM 4500-H+ B	**6.97**	pH Units	-	-	1	05/14/14	NA	H
Solids, Total Dissolved (TDS)	160.1	**1190**	mg/L	20	20	2	05/14/14	NA	
Sulfate	300.0	**184**	mg/L	10	2	10	05/23/14	NA	

KJ 6-10-14

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: EarthCon Site Services Inc
Project: IP Roanake Rapids/25.20090383.14
Sample Matrix: Water

Service Request: J1403453
Date Collected: 05/12/14 12:20
Date Received: 05/13/14 07:50

Sample Name: LG-7
Lab Code: J1403453-004

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	05/19/14 20:43	05/15/14	
Barium, Total Recoverable	6020	**349**	ug/L	2.0	0.5	1	05/19/14 20:43	05/15/14	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	05/19/14 20:43	05/15/14	
Chromium, Total Recoverable	6020	**0.3 J**	ug/L	1.0	0.2	1	05/19/14 20:43	05/15/14	
Copper, Total Recoverable	6020	**1.2**	ug/L	1.0	0.3	1	05/19/14 20:43	05/15/14	
Iron, Total Recoverable	6010B	**830**	ug/L	100	3	1	05/17/14 00:48	05/14/14	
Lead, Total Recoverable	6020	0.12 U	ug/L	0.50	0.12	1	05/19/14 20:43	05/15/14	
Manganese, Total Recoverable	6010B	**2770**	ug/L	10	3	1	05/17/14 00:48	05/14/14	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	05/16/14 15:44	05/15/14	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	05/19/14 20:43	05/15/14	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	05/19/14 20:43	05/15/14	
Zinc, Total Recoverable	6020	**2.1 J**	ug/L	5.0	1.6	1	05/19/14 20:43	05/15/14	

KP 6-10-14

ALS Group USA, Corp.
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Analytical Report

Client: EarthCon Site Services Inc
Project: IP Roanake Rapids/25.20090383.14
Sample Matrix: Water

Service Request: J1403453
Date Collected: 05/12/14 12:20
Date Received: 05/13/14 07:50

Sample Name: LG-7
Lab Code: J1403453-004

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**4.0**	UX	mg/L	4.0	4.0	2	05/14/14	NA	
Carbon, Total Organic (TOC)	415.1	**7.0**		mg/L	1.0	0.09	1	05/27/14	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	16	U	mg/L	20	16	1	05/15/14	05/14/14	
Chloride	300.0	**42.1**		mg/L	1.0	0.2	1	05/14/14	NA	
Conductivity at 25 Degrees Celsius	120.1	**2180**		uMHOS/cm	1.0	1.0	1	05/15/14	NA	
Fluoride	300.0	**0.22**		mg/L	0.20	0.02	1	05/14/14	NA	
Nitrate as Nitrogen	300.0	**1.18**		mg/L	0.20	0.03	1	05/14/14	NA	
pH	SM 4500-H+ B	**7.24**		pH Units	-	-	1	05/14/14	NA	H
Solids, Total Dissolved (TDS)	160.1	**1520**		mg/L	40	40	4	05/14/14	NA	
Sulfate	300.0	**249**		mg/L	10	2	10	05/23/14	NA	

FPO 6-10-14

ALS Group USA, Corp.
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Analytical Report

Client: EarthCon Site Services Inc
Project: IP Roanake Rapids/25.20090383.14
Sample Matrix: Water

Service Request: J1403453
Date Collected: 05/12/14 00:00
Date Received: 05/13/14 07:50

Sample Name: DUP-1
Lab Code: J1403453-005

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	05/19/14 20:48	05/15/14	
Barium, Total Recoverable	6020	**110**	ug/L	2.0	0.5	1	05/19/14 20:48	05/15/14	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	05/19/14 20:48	05/15/14	
Chromium, Total Recoverable	6020	**2.2**	ug/L	1.0	0.2	1	05/19/14 20:48	05/15/14	
Copper, Total Recoverable	6020	**6.0**	ug/L	1.0	0.3	1	05/19/14 20:48	05/15/14	
Iron, Total Recoverable	6010B	**4370**	ug/L	100	3	1	05/17/14 00:57	05/14/14	
Lead, Total Recoverable	6020	**2.83**	ug/L	0.50	0.12	1	05/19/14 20:48	05/15/14	
Manganese, Total Recoverable	6010B	**624**	ug/L	10	3	1	05/17/14 00:58	05/14/14	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	05/16/14 15:45	05/15/14	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	05/19/14 20:48	05/15/14	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	05/19/14 20:48	05/15/14	
Zinc, Total Recoverable	6020	**3.7 J**	ug/L	5.0	1.6	1	05/19/14 20:48	05/15/14	

KP 6-10-14

ALS Group USA, Corp.
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Analytical Report

Client: EarthCon Site Services Inc
Project: IP Roanake Rapids/25.20090383.14
Sample Matrix: Water

Service Request: J1403453
Date Collected: 05/12/14 00:00
Date Received: 05/13/14 07:50

Sample Name: DUP-1
Lab Code: J1403453-005

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**4.0**	UX	mg/L	4.0	4.0	2	05/14/14	NA	*
Carbon, Total Organic (TOC)	415.1	**12.3**		mg/L	1.0	0.09	1	05/27/14	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**22**		mg/L	20	16	1	05/15/14	05/14/14	
Chloride	300.0	**1.5**		mg/L	1.0	0.2	1	05/14/14	NA	
Conductivity at 25 Degrees Celsius	120.1	**194**		uMHOS/cm	1.0	1.0	1	05/15/14	NA	
Fluoride	300.0	**0.15**	J	mg/L	0.20	0.02	1	05/14/14	NA	
Nitrate as Nitrogen	300.0	0.03	U	mg/L	0.20	0.03	1	05/14/14	NA	*
pH	SM 4500-H+ B	**6.72**		pH Units	-	-	1	05/14/14	NA	H
Solids, Total Dissolved (TDS)	160.1	**150**		mg/L	10	10	1	05/14/14	NA	
Sulfate	300.0	**4.5**		mg/L	1.0	0.2	1	05/14/14	NA	

FQU 6.10.14

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: EarthCon Site Services Inc
Project: IP Roanake Rapids/25.20090383.14
Sample Matrix: Water

Service Request: J1403453
Date Collected: 05/12/14 13:45
Date Received: 05/13/14 07:50

Sample Name: LG-1
Lab Code: J1403453-006

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total Recoverable	6020	0.5 U	ug/L	1.0	0.5	1	05/19/14 22:30	05/15/14	
Barium, Total Recoverable	6020	**109**	ug/L	2.0	0.5	1	05/19/14 22:30	05/15/14	
Cadmium, Total Recoverable	6020	0.10 U	ug/L	0.40	0.10	1	05/19/14 22:30	05/15/14	
Chromium, Total Recoverable	6020	**2.0**	ug/L	1.0	0.2	1	05/19/14 22:30	05/15/14	
Copper, Total Recoverable	6020	**6.4**	ug/L	1.0	0.3	1	05/19/14 22:30	05/15/14	
Iron, Total Recoverable	6010B	**4580**	ug/L	100	3	1	05/17/14 01:09	05/14/14	
Lead, Total Recoverable	6020	**3.28**	ug/L	0.50	0.12	1	05/19/14 22:30	05/15/14	
Manganese, Total Recoverable	6010B	**623**	ug/L	10	3	1	05/17/14 01:10	05/14/14	
Mercury, Total	7470A	0.02 U	ug/L	0.10	0.02	1	05/16/14 15:46	05/15/14	
Selenium, Total Recoverable	6020	1.1 U	ug/L	2.0	1.1	1	05/19/14 22:30	05/15/14	
Silver, Total Recoverable	6020	0.06 U	ug/L	0.50	0.06	1	05/19/14 22:30	05/15/14	
Zinc, Total Recoverable	6020	**4.0 J**	ug/L	5.0	1.6	1	05/19/14 22:30	05/15/14	

KD 6-10-14

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	EarthCon Site Services Inc	**Service Request:**	J1403453
Project:	IP Roanake Rapids/25.20090383.14	**Date Collected:**	05/12/14 13:45
Sample Matrix:	Water	**Date Received:**	05/13/14 07:50
Sample Name:	LG-1		
Lab Code:	J1403453-006	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Biochemical Oxygen Demand (BOD)	405.1	**4.0**	UX	mg/L	4.0	4.0	2	05/14/14	NA	
Carbon, Total Organic (TOC)	415.1	**12.0**		mg/L	1.0	0.09	1	05/27/14	NA	
Chemical Oxygen Demand, Total	SM21 5220 D	**30**		mg/L	20	16	1	05/15/14	05/14/14	
Chloride	300.0	**1.5**		mg/L	1.0	0.2	1	05/14/14	NA	
Conductivity at 25 Degrees Celsius	120.1	**191**		uMHOS/cm	1.0	1.0	1	05/15/14	NA	
Fluoride	300.0	**0.15**	J	mg/L	0.20	0.02	1	05/14/14	NA	
Nitrate as Nitrogen	300.0	0.03	U	mg/L	0.20	0.03	1	05/14/14	NA	
pH	SM 4500-H+ B	**6.75**		pH Units	-	-	1	05/14/14	NA	H
Solids, Total Dissolved (TDS)	160.1	**144**		mg/L	10	10	1	05/14/14	NA	
Sulfate	300.0	**5.1**		mg/L	1.0	0.2	1	05/14/14	NA	

KJD 6.10.14

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#: 14051494
Date Reported: 5/22/2014
Company: ALS Environmental, Inc.
Address: 9143 Philips HWY
Jacksonville FL 32256
Received: 5/14/2014
Project#: J1403453

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
LG-6	001	5/12/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	5/21/2014	JRK
LG-5	002	5/12/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	5/21/2014	JRK
LG-3	003	5/12/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	5/21/2014	JRK
LG-7	004	5/12/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	5/21/2014	JRK
DUP-1	005	5/12/2014	Total Organic Halides	0.15	mg/L	Non-Potable Water	EPA 9020	1	0.10	5/21/2014	JRK
LG-1	006	5/12/2014	Total Organic Halides	0.16	mg/L	Non-Potable Water	EPA 9020	1	0.10	5/21/2014	JRK

6-10-14