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 of North Carolina, 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)
International Paper Company Low Ground Landfill Roanoke Rapids, NC	Kapstone Mill 100 Gaston Road Roanoke Rapid, NC	42 03	.0500	November 5, 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 | Senior Geologist | 770-973-2100 ext. 2882

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

Peter E Ramsey | 1/5/15

Signature | Date

Affix NC Licensed/ Professional Geologist Seal

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

Facility Representative Address

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

Revised 6/2009

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EarthCon Consultants of
North Carolina, P.C.
1880 West Oak Parkway
Building 100, Suite 106
Marietta, Georgia 30062

P: 770-973-2100
F: 770-973-7395
www.earthcon.com

January 12, 2015

RECEIVED
JAN 13 2015
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 of North Carolina, P.C. Project No. 25.20090383.14

Dear Mr. Heardon;

On behalf of International Paper Company, EarthCon Consultants of North Carolina, P.C. (EarthCon) is submitting the attached Semi-annual Environmental Monitoring Report for the November 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 November 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 Pace Analytical Services, Inc. (Pace) in Huntersville, NC, 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 (1,050 mg/L), MW-LG6 (1,830 mg/L) and MW-LG7 (1,630 mg/L) exceeded the NC 2L standard of 500 mg/L.
- The total iron results from four wells MW-LG1 (3,810 ug/L), MW-LG5 (20,800 ug/L), MW-LG6 (14,200 ug/L) and LG-7 (1,600 ug/L) exceeded the NC 2L standard of 300 ug/L.
- The total manganese results from the five wells MW-LG1 (362 ug/L), MW-LG3 (1,350 ug/L), MW-LG5 (7,100 ug/L), MW-LG6 (1,180 ug/L) and MW-LG7 (4,000 ug/L) exceeded the NC 2L standard of 50 ug/L.
- The nitrate as nitrogen result from one well MW-LG3 (24.1 mg/L) exceeded the NC 2L standard of 10 mg/L.

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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 pH analyses were performed beyond the method holding time of ASAP (usually interpreted as less than 15 minutes). The pH result of each sample was qualified as estimated (J).
- The recovery values for nitrate the DUP-1 MS and MSD sample are below the QC limit. The Nitrate Nitrogen result for the DUP-1 sample is qualified as estimated detection limit (UJ).
- The sulfate recovery values for LG-5 MS and MSD and the TOC recovery values for LG-6 MS and MSD exceed the laboratory QC limit. The Sulfate and TOC results for the LG-5 and LG-6 samples, respectively, are qualified as estimated (J).

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 24.1 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
- Pace Analytical Services, Inc. Laboratory Analytical Report
- EarthCon Consultants, Inc. Quality Assurance Review

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EarthCon Consultants, of
North Carolina, P.C.
1880 West Oak Parkway
Building 100, Suite 106
Marietta, Georgia 30062

P: 770-973-2100
F: 770-973-7395
www.earthcon.com

NC Solid Waste Section Summary Table
Submitted to NCDENR on January 12, 2015
Samples Collected on 11/05/14 by EarthCon Consultants of North Carolina, P.C.
Prepared by BGM 01/05/15 and Checked by PER 01/05/15

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NC Solid Waste Section Summary Table
Submitted to NCDENR on January 12, 2015
Samples Collected on 11/05/14 by EarthCon Consultants of North Carolina, P.C.
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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	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG1	7440-39-3	15	Barium, Total	88.4	ug/L		EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG1	7440-43-9	34	Cadmium, Total	0.17	ug/L		EPA 6020	0.05	0.1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG1	7440-47-3	51	Chromium, Total	1.7	ug/L		EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG1	7440-50-8	54	Copper, Total	3.2	ug/L		EPA 6020	0.93	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG1	7439-92-1	131	Lead, Total	1.8	ug/L		EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG1	7439-97-6	132	Mercury, Total	0.1	ug/L	U	EPA 7470	0.1	0.2		1	11/05/2014	11/14/2014	11/17/2014	527
42-03	4203-LG1	7782-49-2	183	Selenium, Total	0.5	ug/L	U	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG1	7440-22-4	184	Silver, Total	0.05	ug/L	U	EPA 6020	0.05	0.1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG1	7440-66-6	213	Zinc, Total	2.5	ug/L	J	EPA 6020	2.5	5		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG1	16887-00-6	301	Chloride	3600	ug/L	J	EPA 300.0	2.5	5		1	11/05/2014	11/13/2014	11/13/2014	527
42-03	4203-LG1	14797-55-8	303	Nitrate as Nitrogen	10	ug/L	U	EPA 353.2	0.01	0.02		1	11/05/2014	11/06/2014	11/06/2014	527
42-03	4203-LG1		311	Solids, Total Dissolved (TDS)	152000	ug/L		SM 2540C	25	25		1	11/05/2014	11/11/2014	11/11/2014	527
42-03	4203-LG1	16984-48-8	312	Fluoride	160	ug/L		EPA 300.0	0.047	0.05		1	11/05/2014	11/13/2014	11/13/2014	527
42-03	4203-LG1	14808-79-8	315	Sulfate	8800	ug/L		EPA 300.0	2.5	5		1	11/05/2014	11/13/2014	11/13/2014	527
42-03	4203-LG1		316	Biochemical Oxygen Demand (BOD)	3300	ug/L		SM 5210B	2	2		1	11/05/2014	11/07/2014	11/12/2014	527
42-03	4203-LG1		317	Chemical Oxygen Demand (COD)	16000	ug/L	J	SM 5220D	12.5	25		1	11/05/2014	11/18/2014	11/18/2014	527
42-03	4203-LG1	12408-02-5	321	pH	6.8	PH	J	SM 4500-H+B	0.1	1		1	11/05/2014	11/10/2014	11/10/2014	527
42-03	4203-LG1		323	Conductivity at 25 Degrees Celsius	159	uMHOS/cm		Field Collected	1	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG1	7439-89-6	340	Iron, Total	3810	ug/L		EPA 6020	6.9	10		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG1	7439-96-5	342	Manganese, Total	362	ug/L		EPA 6020	0.69	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG1	7440-44-0	357	Carbon, Total Organic (TOC)	25200	ug/L		SM 5310B	0.5	1		1	11/05/2014	11/14/2014	11/14/2014	527
42-03	4203-LG1		396	Halides, Total Organic (TOX)	100	ug/L	U	EPA 9020	-9	0.1		1	11/05/2014	11/07/2014	11/21/2014	527
42-03	4203-LG3	7440-38-2	14	Arsenic, Total	0.5	ug/L	U	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG3	7440-39-3	15	Barium, Total	54.4	ug/L		EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG3	7440-43-9	34	Cadmium, Total	0.05	ug/L	U	EPA 6020	0.05	0.1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG3	7440-47-3	51	Chromium, Total	0.71	ug/L	J	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG3	7440-50-8	54	Copper, Total	0.93	ug/L	U	EPA 6020	0.93	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG3	7439-92-1	131	Lead, Total	0.5	ug/L	U	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG3	7439-97-6	132	Mercury, Total	0.1	ug/L	U	EPA 7470	0.1	0.2		1	11/05/2014	11/14/2014	11/17/2014	527
42-03	4203-LG3	7782-49-2	183	Selenium, Total	0.86	ug/L	J	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG3	7440-22-4	184	Silver, Total	0.05	ug/L	U	EPA 6020	0.05	0.1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG3	7440-66-6	213	Zinc, Total	2.5	ug/L	U	EPA 6020	2.5	5		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG3	16887-00-6	301	Chloride	27800	ug/L		EPA 300.0	12.5	25		5	11/05/2014	11/13/2014	11/13/2014	527
42-03	4203-LG3	14797-55-8	303	Nitrate as Nitrogen	24100	ug/L	J	EPA 353.2	0.1	0.2		10	11/05/2014	11/07/2014	11/07/2014	527
42-03	4203-LG3		311	Solids, Total Dissolved (TDS)	1050000	ug/L		SM 2540C	25	25		1	11/05/2014	11/11/2014	11/11/2014	527
42-03	4203-LG3	16984-48-8	312	Fluoride	380	ug/L		EPA 300.0	0.24	0.25		5	11/05/2014	11/13/2014	11/13/2014	527
42-03	4203-LG3	14808-79-8	315	Sulfate	171000	ug/L		EPA 300.0	12.5	25		5	11/05/2014	11/13/2014	11/13/2014	527
42-03	4203-LG3		316	Biochemical Oxygen Demand (BOD)	2000	ug/L	U	SM 5210B	2	2		1	11/05/2014	11/07/2014	11/12/2014	527
42-03	4203-LG3		317	Chemical Oxygen Demand (COD)	18000	ug/L	J	SM 5220D	12.5	25		1	11/05/2014	11/18/2014	11/18/2014	527
42-03	4203-LG3	12408-02-5	321	pH	7.4	PH	J	SM 4500-H+B	0.1	1		1	11/05/2014	11/10/2014	11/10/2014	527
42-03	4203-LG3		323	Conductivity at 25 Degrees Celsius	1547	uMHOS/cm		Field Collected	1	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG3	7439-89-6	340	Iron, Total	117	ug/L		EPA 6020	6.9	10		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG3	7439-96-5	342	Manganese, Total	1350	ug/L		EPA 6020	3.4	5		5	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG3	7440-44-0	357	Carbon, Total Organic (TOC)	67400	ug/L		SM 5310B	1	2		2	11/05/2014	11/15/2014	11/15/2014	527
42-03	4203-LG3		396	Halides, Total Organic (TOX)	100	ug/L	U	EPA 9020	-9	0.1		1	11/05/2014	11/07/2014	11/21/2014	527
42-03	4203-LG5	7440-38-2	14	Arsenic, Total	2.4	ug/L		EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG5	7440-39-3	15	Barium, Total	114	ug/L		EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG5	7440-43-9	34	Cadmium, Total	0.091	ug/L	J	EPA 6020	0.05	0.1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG5	7440-47-3	51	Chromium, Total	3.7	ug/L		EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG5	7440-50-8	54	Copper, Total	1.9	ug/L		EPA 6020	0.93	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG5	7439-92-1	131	Lead, Total	0.5	ug/L	U	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG5	7439-97-6	132	Mercury, Total	0.1	ug/L	U	EPA 7470	0.1	0.2		1	11/05/2014	11/14/2014	11/17/2014	527
42-03	4203-LG5	7782-49-2	183	Selenium, Total	0.55	ug/L	J	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG5	7440-22-4	184	Silver, Total	0.05	ug/L	U	EPA 6020	0.05	0.1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG5	7440-66-6	213	Zinc, Total	6.3	ug/L		EPA 6020	2.5	5		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG5	16887-00-6	301	Chloride	3100	ug/L	J	EPA 300.0	2.5	5		1	11/05/2014	11/13/2014	11/13/2014	527
42-03	4203-LG5	14797-55-8	303	Nitrate as Nitrogen	10	ug/L	U	EPA 353.2	0.01	0.02		1	11/05/2014	11/06/2014	11/06/2014	527
42-03	4203-LG5		311	Solids, Total Dissolved (TDS)	380000	ug/L		SM 2540C	25	25		1	11/05/2014	11/11/2014	11/11/2014	527
42-03	4203-LG5	16984-48-8	312	Fluoride	180	ug/L		EPA 300.0	0.047	0.05		1	11/05/2014	11/13/2014	11/13/2014	527
42-03	4203-LG5	14808-79-8	315	Sulfate	98300	ug/L	J	EPA 300.0	5	10		2	11/05/2014	11/13/2014	11/13/2014	527
42-03	4203-LG5		316	Biochemical Oxygen Demand (BOD)	2000	ug/L	U	SM 5210B	2	2		1	11/05/2014	11/07/2014	11/12/2014	527
42-03	4203-LG5		317	Chemical Oxygen Demand (COD)	48000	ug/L		SM 5220D	12.5	25		1	11/05/2014	11/18/2014	11/18/2014	527
42-03	4203-LG5	12408-02-5	321	pH	6.3	PH	J	SM 4500-H+B	0.1	1		1	11/05/2014	11/10/2014	11/10/2014	527
42-03	4203-LG5		323	Conductivity at 25 Degrees Celsius	484	uMHOS/cm		Field Collected	1	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG5	7439-89-6	340	Iron, Total	20800	ug/L		EPA 6020	69.4	100		10	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG5	7439-96-5	342	Manganese, Total	7100	ug/L		EPA 6020	13.8	20		20	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG5	7440-44-0	357	Carbon, Total Organic (TOC)	74200	ug/L		SM 5310B	1	2		2	11/05/2014	11/15/2014	11/15/2014	527
42-03	4203-LG5		396	Halides, Total Organic (TOX)	100	ug/L	U	EPA 9020	-9	0.1		1	11/05/2014	11/07/2014	11/21/2014	527
42-03	4203-LG6	7440-38-2	14	Arsenic, Total	0.5	ug/L	U	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG6	7440-39-3	15	Barium, Total	562	ug/L		EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG6	7440-43-9	34	Cadmium, Total	0.05	ug/L	U	EPA 6020	0.05	0.1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG6	7440-47-3	51	Chromium, Total	3.5	ug/L		EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG6	7440-50-8	54	Copper, Total	0.93	ug/L	U	EPA 6020	0.93	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG6	7439-92-1	131	Lead, Total	0.5	ug/L	U	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG6	7439-97-6	132	Mercury, Total	0.1	ug/L	U	EPA 7470	0.1	0.2		1	11/05/2014	11/14/2014	11/17/2014	527
42-03	4203-LG6	7782-49-2	183	Selenium, Total	0.5	ug/L	U	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG6	7440-22-4	184	Silver, Total	0.05	ug/L	U	EPA 6020	0.05	0.1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG6	7440-66-6	213	Zinc, Total	2.5	ug/L	U	EPA 6020	2.5	5		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG6	16887-00-6	301	Chloride	13600	ug/L		EPA 300.0	2.5	5		1	11/05/2014	11/15/2014	11/15/2014	527
42-03	4203-LG6	14797-55-8	303	Nitrate as Nitrogen	1100	ug/L		EPA 353.2	0.01	0.02		1	11/05/2014	11/06/2014	11/06/2014	527
42-03	4203-LG6		311	Solids, Total Dissolved (TDS)	1830000	ug/L		SM 2540C	250	250		1	11/05/2014	11/11/2014	11/11/2014	527
42-03	4203-LG6	16984-48-8	312	Fluoride	310	ug/L		EPA 300.0	0.047	0.05		1	11/05/2014	11/15/2014	11/15/2014	527
42-03	4203-LG6	14808-79-8	315	Sulfate	48400	ug/L		EPA 300.0	2.5	5		1	11/05/2014	11/15/2014	11/15/2014	527
42-03	4203-LG6		316	Biochemical Oxygen Demand (BOD)	2000	ug/L	U	SM 5210B	2	2		1	11/05/2014	11/07/2014	11/12/2014	527
42-03	4203-LG6		317	Chemical Oxygen Demand (COD)	58000	ug/L		SM 5220D	12.5	25		1	11/05/2014	11/18/2014	11/18/2014	527
42-03	4203-LG6	12408-02-5	321	pH	7.2	PH	J	SM 4500-H+B	0.1	1		1	11/05/2014	11/10/2014	11/10/2014	527
42-03	4203-LG6		323	Conductivity at 25 Degrees Celsius	2974	uMHOS/cm		Field Collected	1	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG6	7439-89-6	340	Iron, Total	14200	ug/L		EPA 6020	69.4	100		10	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG6	7439-96-5	342	Manganese, Total	1180	ug/L		EPA 6020	0.69	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG6	7440-44-0	357	Carbon, Total Organic (TOC)	171000	ug/L	J	SM 5310B	2.5	5		5	11/05/2014	11/15/2014	11/15/2014	527
42-03	4203-LG6		396	Halides, Total Organic (TOX)	100	ug/L	U	EPA 9020	-9	0.1		1	11/05/2014	11/07/2014	11/21/2014	527
42-03	4203-LG7	7440-38-2	14	Arsenic, Total	0.5	ug/L	U	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG7	7440-39-3	15	Barium, Total	260	ug/L		EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG7	7440-43-9	34	Cadmium, Total	0.088	ug/L	J	EPA 6020	0.05	0.1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG7	7440-47-3	51	Chromium, Total	0.5	ug/L	U	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG7	7440-50-8	54	Copper, Total	0.93	ug/L	U	EPA 6020	0.93	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG7	7439-92-1	131	Lead, Total	0.5	ug/L	U	EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG7	7439-97-6	132	Mercury, Total	0.1	ug/L	U	EPA 7470	0.1	0.2		1	11/05/2014	11/14/2014	11/17/2014	527
42-03	4203-LG7	7782-49-2	183	Selenium, Total	1	ug/L		EPA 6020	0.5	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG7	7440-22-4	184	Silver, Total	0.05	ug/L	U	EPA 6020	0.05	0.1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG7	7440-66-6	213	Zinc, Total	2.5	ug/L	U	EPA 6020	2.5	5		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG7	16887-00-6	301	Chloride	29500	ug/L		EPA 300.0	12.5	25		5	11/05/2014	11/13/2014	11/13/2014	527
42-03	4203-LG7	14797-55-8	303	Nitrate as Nitrogen	2300	ug/L		EPA 353.2	0.01	0.02		1	11/05/2014	11/06/2014	11/06/2014	527
42-03	4203-LG7		311	Solids, Total Dissolved (TDS)	1630000	ug/L		SM 2540C	250	250		1	11/05/2014	11/11/2014	11/11/2014	527
42-03	4203-LG7	16984-48-8	312	Fluoride	240	ug/L	U	EPA 300.0	0.24	0.25		5	11/05/2014	11/13/2014	11/13/2014	527
42-03	4203-LG7	14808-79-8	315	Sulfate	212000	ug/L		EPA 300.0	12.5	25		5	11/05/2014	11/13/2014	11/13/2014	527
42-03	4203-LG7		316	Biochemical Oxygen Demand (BOD)	2000	ug/L	U	SM 5210B	2	2		1	11/05/2014	11/07/2014	11/12/2014	527
42-03	4203-LG7		317	Chemical Oxygen Demand (COD)	35000	ug/L		SM 5220D	12.5	25		1	11/05/2014	11/18/2014	11/18/2014	527
42-03	4203-LG7	12408-02-5	321	pH	7	PH	J	SM 4500-H+B	0.1	1		1	11/05/2014	11/10/2014	11/10/2014	527
42-03	4203-LG7		323	Conductivity at 25 Degrees Celsius	2133	uMHOS/cm		Field Collected	1	1		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG7	7439-89-6	340	Iron, Total	1600	ug/L		EPA 6020	6.9	10		1	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG7	7439-96-5	342	Manganese, Total	4000	ug/L		EPA 6020	6.9	10		10	11/05/2014	11/13/2014	11/17/2014	527
42-03	4203-LG7	7440-44-0	357	Carbon, Total Organic (TOC)	128000	ug/L		SM 5310B	2	4		4	11/05/2014	11/15/2014	11/15/2014	527
42-03	4203-LG7		396	Halides, Total Organic (TOX)	100	ug/L	U	EPA 9020	-9	0.1		1	11/05/2014	11/07/2014	11/21/2014	527

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Environmental Challenges
BUSINESS SOLUTIONS

International Paper — **Groundwater Sampling Record**

WELL No. LG-1	PROJECT # 25.20090383.14	LOCATION Roanoke Rapids, NC	DATE 11/5/14
SAMPLE No.	PROJECT NAME IP Roanoke Rapids	FIELD PERSONNEL/COMPANY R. Davis, J. Hughes	
SAMPLE TIME: 1415	SITE International Paper	FIELD CONDITIONS/WEATHER Overcast 60°	

Well Condition Inspection (circle one)

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

Equipment Cleaning Procedures

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

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

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

Depth to Water (feet):	8.49	Measuring Point Elevation (feet):	TOC
Depth of Well (feet):	16.36	Groundwater Surface Elevation:	
Water Column (feet):	7.87	LNAPL present: ____ thickness:	
Casing Volume (gallons):	1.28	DNAPL present: ____ thickness:	
Calculated Purge Volume (gallons):	3.85	Remarks:	
Actual Purge Volume (gallons):	2.0		

Well Evacuation

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

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMP (°C)	pH	CONDUCTIVITY (µs/cm)	DISSOLVED OXYGEN (ppm)	Eh	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
1259	0							PURGE START
1301	—	17.20	6.06	208	1.42	+49.7	529.0	9.14
1310	0.5	17.35	5.82	151	0.13	+36.5	63.83	9.89
1320	0.9	17.49	5.73	142	0.07	+20.5	45.15	10.97
1330	1.4	17.56	5.73	148	0.09	+11.8	14.11	11.78
1340	1.8	17.54	5.77	159	0.08	+18.4	6.55	12.59

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	11/5/14
Turbidity	HF Scientific	MICRO TPW 20000	11/5/14
Peri Pump	Geopump		

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS
1	40ml / number HCl	TOC	BOD - 1L plastic
1	COD	125ml HDPE H_2SO_4	Cl - 125ml plastic
1	TOX	250ml Glass H_2SO_4	Nitrate/pH - 250 ml plastic
3	metals 250	500ml HDPE HNO_3	
	Various	500ml HDPE —	

Dup-1 Collected here

Start purge - 1259
End purge - 1340

Sample - 1415

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Environmental Challenges
BUSINESS SOLUTIONS

International Paper — **Groundwater Sampling Record**

WELL No. LG-3	PROJECT # 25.2009 0383.14	LOCATION Roanoke Rapids, NC	DATE 11/5/14
SAMPLE No.	PROJECT NAME IP Roanoke Rapids	FIELD PERSONNEL/COMPANY P. Davis, J. Hughes	
SAMPLE TIME: 1110	SITE International Paper	FIELD CONDITIONS/WEATHER Hot, Cloudy 60s	

Well Condition Inspection (circle one)

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

Equipment Cleaning Procedures

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

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

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

Depth to Water (feet):	6.46	Measuring Point Elevation (feet):	TOC
Depth of Well (feet):	19.83	Groundwater Surface Elevation:	
Water Column (feet):	13.37	LNAPL present: ____	thickness:
Casing Volume (gallons):	2.18	DNAPL present: ____	thickness:
Calculated Purge Volume (gallons):	6.54	Remarks:	
Actual Purge Volume (gallons):	2.78		

Well Evacuation

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

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMP (°C)	pH	CONDUCTIVITY (µs/cm)	DISSOLVED OXYGEN (ppm)	Eh	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
1000	0							PURGE START
1003	~	18.51	6.32	1418	1.64	-26.1	6.14	7.04
1010	0.3	18.72	6.34	1400	0.29	-0.6	0.00	7.31
1020	0.75	18.93	6.40	1381	0.54	16.6	0.00	7.62
1030	1.40	19.02	6.41	1457	0.68	30.5	0.00	7.82
1040	2.0	19.07	6.41	1525	0.65	42.5	0.00	8.01
1050	2.5	19.11	6.41	1547	0.96	49.2	0.00	8.09

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	11/5/14
Turbidity	HF Scientific	MICRO TPW 20000	11/5/14
Peri Pump	Geopumps		

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS
	TOC	40ml Amber HCl	BOD - 1L plastic
	COD	125ml HDPE H_2SO_4	CL - 125ml plastic
	TOX	250ml Glass H_2SO_4	NITRATE/pH - 250ml plastic
	Metals 200	500ml HDPE HNO_3	
	Various	500ml HDPE —	

START purge - 1000
End purge - 1050

Sample - 1110

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Environmental Challenges
BUSINESS SOLUTIONS

International Paper — **Groundwater Sampling Record**

WELL No. LG-5	PROJECT # 25.2009038.14	LOCATION Roanoke Rapids, NC	DATE 11/5/14
SAMPLE No.	PROJECT NAME IP Roanoke Rapids	FIELD PERSONNEL/COMPANY R. Davis, J. Hughes	
SAMPLE TIME: 0940	SITE International Paper	FIELD CONDITIONS/WEATHER Overcast 52°	

Well Condition Inspection (circle one)

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

Equipment Cleaning Procedures

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

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

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

Depth to Water (feet):	9.70	Measuring Point Elevation (feet):	TOC
Depth of Well (feet):	18.98	Groundwater Surface Elevation:	
Water Column (feet):	9.28	LNAPL present: ___	thickness:
Casing Volume (gallons):	1.51	DNAPL present: ___	thickness:
Calculated Purge Volume (gallons):	4.54	Remarks:	
Actual Purge Volume (gallons):	1.6		

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

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMP (°C)	pH	CONDUCTIVITY (µs/cm)	DISSOLVED OXYGEN (ppm)	Eh	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
0844	0							PURGE START
0848	—	17.77	6.01	569	1.42	+47.3	7.78	10.46
0855	0.4	18.47	5.88	514	0.18	-48.2	3.92	11.20
0905	0.9	18.81	5.84	4.99	0.10	-48.9	1.63	12.14
0915	1.5	18.82	5.81	4.84	0.11	-43.8	1.94	12.98

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	11/5/14
Turbidity	HF Scientific	Micro TPW 20000	11/5/14
Peri Pump	Geopump		

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS
	TOC	40ml Amber HCl	BOD - 1L plastic
	COD	125ml HDPE H_2SO_4	CL - 125ml plastic
	TOX	250ml Glass H_2SO_4	NITRATE/pH - 250ml plastic
	Metals 250	500ml HDPE HNO_3	
	VARIOUS	500ml HDPE —	

START purge - 0844
END purge - 0916

Sample - 0940

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Environmental Challenges
BUSINESS SOLUTIONS

International Paper — **Groundwater Sampling Record**

WELL No. LG-6	PROJECT # 25.2009.03814	LOCATION Roanoke Rapids, NC	DATE 11/5/14
SAMPLE No.	PROJECT NAME IP Roanoke Rapids	FIELD PERSONNEL/COMPANY K. Davis, J. Hughes	
SAMPLE TIME: 0815	SITE International Paper	FIELD CONDITIONS/WEATHER overcast 52°	

Well Condition Inspection (circle one)

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

Equipment Cleaning Procedures

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

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

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

Depth to Water (feet):	8.61	Measuring Point Elevation (feet):	
Depth of Well (feet):	18.72	Groundwater Surface Elevation:	
Water Column (feet):	10.11	LNAPL present: ____ thickness:	
Casing Volume (gallons):	1.64	DNAPL present: ____ thickness:	
Calculated Purge Volume (gallons):	4.94	Remarks:	
Actual Purge Volume (gallons):	2.2		

Well Evacuation

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

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMP (°C)	pH	CONDUCTIVITY (µs/cm)	DISSOLVED OXYGEN (ppm)	Eh	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
0717	0							PURGE START
0720	-	18.24	6.71	2921	1.44	-101.9	5.98	9.60
0730	0.5	19.30	6.71	3022	0.50	-108.1	0.00	10.99
0740	1.0	19.41	6.71	2959	0.41	-102.2	0.00	11.68
0750	1.5	19.55	6.70	2931	0.39	-101.4	0.00	12.02
0800	2.0	19.39	6.70	2974	0.41	-110.1	0.00	12.17

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	11/5/14
Turbidity	HF Scientific	MicroTPW 20000	11/5/14
Peri pump	Geopump		

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS
	TOC	40ml Amber HCl	BOD - 1L plastic
	TOX	250ml Glass HNO3	CL - 125ml plastic
	COD	125ml HDPE H2SO4	Nitrate/pH - 250ml plastic
	Metals 250	500ml HDPE HNO3	
	Various	500ml HDPE —	

Start purge - 0717
End purge - 0800

Sample 0815

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Environmental Challenges
BUSINESS SOLUTIONS

International Paper — **Groundwater Sampling Record**

WELL No. LG-7	PROJECT # 25.2009.03383.14	LOCATION Roanoke Rapids, NC	DATE 11/5/14
SAMPLE No.	PROJECT NAME SP Roanoke Rapids	FIELD PERSONNEL/COMPANY F. Rollins J. Hughes /	
SAMPLE TIME: 1245	SITE International Paper	FIELD CONDITIONS/WEATHER Overcast 63°	

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/ft³)
Casing Volume (gallons/ft) for: (2" = 0.163) 4" = 0.653; 6" = 1.47

Depth to Water (feet):	9.32	Measuring Point Elevation (feet):	
Depth of Well (feet):	16.85	Groundwater Surface Elevation:	
Water Column (feet):	7.53	LNAPL present: ____ thickness:	
Casing Volume (gallons):	1.22	DNAPL present: ____ thickness:	
Calculated Purge Volume (gallons):	3.68	Remarks:	
Actual Purge Volume (gallons):	3.20		

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

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMP (°C)	pH	CONDUCTIVITY (µs/cm)	DISSOLVED OXYGEN (ppm)	Eh	TURBIDITY (NTU)	ODOR/COLOR/ REMARKS
1129	0							PURGE START
1132	–	17.37	6.44	2167	3.96	31.6	4.62	9.61
1140	0.5	17.40	6.41	2137	0.57	45.7	0.00	9.59
1150	1.0	17.32	6.36	1940	0.55	43.1	1.60	9.66
1200	1.5	17.25	6.37	2128	0.55	33.1	103.7	9.64
1210	2.0	17.31	6.35	1954	0.43	8.8	70.63	9.65
1220	2.5	17.30	6.38	2050	0.38	3.3	6.57	9.68
1230	3.0	17.30	6.42	2133	0.35	-2.0	2.11	9.66

slug of sediment in system

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Water Quality	YSI	556	11/5/14
Turbidity	HF Scientific	MICRO TPW 20030	11/5/14
Peri Pump	Geo Pump		

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS
	TOC	40ml amber HCl	BOD - 1L plastic
	COD	125ml HDPE H_2SO_4	CL - 125 ml plastic
	TOX	250ml Glass HNO_3	NITRATE pH - 250ml plastic
	Metals 250	500ml HDPE HNO_3	
	VARIOUS	500ml HDPE –	

START Purge – 1129
End Purge 1230

Sample – 1245

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1783549

Section A Required Client Information:

Company: EarthCon Ste 161
Address: 1880 West Oak Pkwy Bld 100
Marietta, Ga 30062
Email To: PRamsey@EarthCon.com
Phone: 770-973-2100 Fax: 970-973-7395
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To: Peter Ramsey
Copy To:
Purchase Order No.:
Project Name: J P Roanoke Rapids
Project Number:

Section C Invoice Information:

Attention: Peter Ramsey
Company Name: Same
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE:

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	BOD	COD	Chloride	Metals	Nitrate/Nit	TOX	TOC	TDS/Anions, F, SO4	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	LG-6	WT	G	11/5/14	0815				10	4	2	1					1		1	1	1	1	1	1	3	1		
2	LG-5	WT	G	11/5/14	0940				10	4	2	1					1		1	1	1	1	1	1	3	1		
3	LG-3	WT	G	11/5/14	1110				10	4	2	1					1		1	1	1	1	1	1	3	1		
4	LG-7	WT	G	11/5/14	1245				10	4	2	1					1		1	1	1	1	1	1	3	1		
5	DUP-1	WT	G	11/5/14	—				10	4	2	1					1		1	1	1	1	1	1	3	1		
6	LG-1	WT	G	11/5/14	1415				10	4	2	1					1		1	1	1	1	1	1	3	1		
7	~~TRIP BLANK~~ RND																											
8																												
9																												
10																												
11																												
12																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Kent M Davis EarthCon	11/5/14	1455	Daniel H Jensen / Pace	11-5-14	1500	

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kent M Davis
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11/05/14

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

3

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

LG-1

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

November 21, 2014

Mr. Doug Seely
Earthcon
411A Highland Ave. #377
Somerville, MA 02144

RE: Project: IP Roanoke Rapids
Pace Project No.: 92224482

Dear Mr. Seely:
Enclosed are the analytical results for sample(s) received by the laboratory on November 06, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Gasiorowski

Nicole Gasiorowski
nicole.gasiorowski@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9811
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079870
Wyoming (EPA Region 8): FL NELAC Reciprocity

Raleigh Certification IDs
8701 Conference Drive, Raleigh, NC 27607
North Carolina Wastewater Certification #: 67
North Carolina Bioassay Certification #: 16
North Carolina Drinking Water Certification #: 37731

Asheville Certification IDs
2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

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SAMPLE SUMMARY

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92224482001	LG-6	Water	11/05/14 08:15	11/06/14 07:25
92224482002	LG-5	Water	11/05/14 09:40	11/06/14 07:25
92224482003	LG-3	Water	11/05/14 11:10	11/06/14 07:25
92224482004	LG-7	Water	11/05/14 12:45	11/06/14 07:25
92224482005	Dup-1	Water	11/05/14 00:00	11/06/14 07:25
92224482006	LG-1	Water	11/05/14 14:15	11/06/14 07:25

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SAMPLE ANALYTE COUNT

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92224482001	LG-6	EPA 6020	CRT, DRS	11	PASI-O
		EPA 7470	CKJ	1	PASI-O
		EPA 353.2	EPJ	1	PASI-R
		SM 4500-H+B	JW1	1	PASI-R
		SM 5210B	RC	1	PASI-R
		SM 2540C	WRC	1	PASI-A
		EPA 300.0	AIS	3	PASI-O
		SM 5220D	JTJ	1	PASI-A
		SM 5310B	AES2	1	PASI-A
92224482002	LG-5	EPA 6020	CRT	11	PASI-O
		EPA 7470	CKJ	1	PASI-O
		EPA 353.2	EPJ	1	PASI-R
		SM 4500-H+B	JW1	1	PASI-R
		SM 5210B	RC	1	PASI-R
		SM 2540C	WRC	1	PASI-A
		EPA 300.0	AIS, KHC	3	PASI-O
		SM 5220D	JTJ	1	PASI-A
		SM 5310B	AES2	1	PASI-A
92224482003	LG-3	EPA 6020	CRT	11	PASI-O
		EPA 7470	CKJ	1	PASI-O
		EPA 353.2	EPJ	1	PASI-R
		SM 4500-H+B	JW1	1	PASI-R
		SM 5210B	RC	1	PASI-R
		SM 2540C	WRC	1	PASI-A
		EPA 300.0	KHC	3	PASI-O
		SM 5220D	JTJ	1	PASI-A
		SM 5310B	AES2	1	PASI-A
92224482004	LG-7	EPA 6020	CRT	11	PASI-O
		EPA 7470	CKJ	1	PASI-O
		EPA 353.2	EPJ	1	PASI-R
		SM 4500-H+B	JW1	1	PASI-R
		SM 5210B	RC	1	PASI-R
		SM 2540C	WRC	1	PASI-A
		EPA 300.0	KHC	3	PASI-O
		SM 5220D	JTJ	1	PASI-A
		SM 5310B	AES2	1	PASI-A
92224482005	Dup-1	EPA 6020	CRT	11	PASI-O

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SAMPLE ANALYTE COUNT

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470	CKJ	1	PASI-O
		EPA 353.2	EPJ	1	PASI-R
		SM 4500-H+B	JW1	1	PASI-R
		SM 5210B	RC	1	PASI-R
		SM 2540C	WRC	1	PASI-A
		EPA 300.0	KHC	3	PASI-O
		SM 5220D	JTJ	1	PASI-A
		SM 5310B	AES2	1	PASI-A
92224482006	LG-1	EPA 6020	CRT	11	PASI-O
		EPA 7470	CKJ	1	PASI-O
		EPA 353.2	EPJ	1	PASI-R
		SM 4500-H+B	JW1	1	PASI-R
		SM 5210B	RC	1	PASI-R
		SM 2540C	WRC	1	PASI-A
		EPA 300.0	KHC	3	PASI-O
		SM 5220D	JTJ	1	PASI-A
		SM 5310B	AES2	1	PASI-A

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ANALYTICAL RESULTS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Sample: LG-6 Lab ID: 92224482001 Collected: 11/05/14 08:15 Received: 11/06/14 07:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/18/14 13:50	7440-38-2	
Barium	562	ug/L	1.0	0.50	1	11/13/14 07:25	11/18/14 13:50	7440-39-3	D4
Cadmium	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/18/14 13:50	7440-43-9	
Chromium	3.5	ug/L	1.0	0.50	1	11/13/14 07:25	11/18/14 13:50	7440-47-3	
Copper	ND	ug/L	1.0	0.93	1	11/13/14 07:25	11/18/14 13:50	7440-50-8	
Iron	14200	ug/L	100	69.4	10	11/13/14 07:25	11/19/14 08:59	7439-89-6	D4,M6
Lead	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/18/14 13:50	7439-92-1	
Manganese	1180	ug/L	1.0	0.69	1	11/13/14 07:25	11/18/14 13:50	7439-96-5	D4,M1
Selenium	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/18/14 13:50	7782-49-2	
Silver	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/18/14 13:50	7440-22-4	
Zinc	ND	ug/L	5.0	2.5	1	11/13/14 07:25	11/17/14 09:24	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.10	1	11/14/14 11:56	11/17/14 13:08	7439-97-6	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	1.1	mg/L	0.020	0.010	1		11/06/14 16:23		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	7.2	Std. Units	1.0	0.10	1		11/10/14 14:12		H6
5210B BOD, 5 day RAL	Analytical Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	11/07/14 09:18	11/12/14 12:10		H1
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	1830	mg/L	250	250	1		11/11/14 14:41		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	13.6	mg/L	5.0	2.5	1		11/15/14 10:56	16887-00-6	
Fluoride	0.31	mg/L	0.050	0.047	1		11/15/14 10:56	16984-48-8	
Sulfate	48.4	mg/L	5.0	2.5	1		11/15/14 10:56	14808-79-8	
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	58.0	mg/L	25.0	12.5	1		11/18/14 15:20		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	171	mg/L	5.0	2.5	5		11/15/14 10:54	7440-44-0	M1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Sample: LG-5 Lab ID: 92224482002 Collected: 11/05/14 09:40 Received: 11/06/14 07:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	2.4	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:34	7440-38-2	
Barium	114	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:34	7440-39-3	
Cadmium	0.091J	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:34	7440-43-9	
Chromium	3.7	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:34	7440-47-3	
Copper	1.9	ug/L	1.0	0.93	1	11/13/14 07:25	11/17/14 09:34	7440-50-8	
Iron	20800	ug/L	100	69.4	10	11/13/14 07:25	11/18/14 16:05	7439-89-6	D4
Lead	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:34	7439-92-1	
Manganese	7100	ug/L	20.0	13.8	20	11/13/14 07:25	11/17/14 10:58	7439-96-5	D4
Selenium	0.55J	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:34	7782-49-2	
Silver	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:34	7440-22-4	
Zinc	6.3	ug/L	5.0	2.5	1	11/13/14 07:25	11/17/14 09:34	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.10	1	11/14/14 11:56	11/17/14 13:10	7439-97-6	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.020	0.010	1		11/06/14 18:24		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	6.3	Std. Units	1.0	0.10	1		11/10/14 14:12		H6
5210B BOD, 5 day RAL	Analytical Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	11/07/14 09:18	11/12/14 12:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	380	mg/L	25.0	25.0	1		11/11/14 14:42		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	3.1J	mg/L	5.0	2.5	1		11/13/14 15:56	16887-00-6	
Fluoride	0.18	mg/L	0.050	0.047	1		11/13/14 15:56	16984-48-8	
Sulfate	98.3	mg/L	10.0	5.0	2		11/15/14 12:00	14808-79-8	
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	48.0	mg/L	25.0	12.5	1		11/18/14 15:20		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	74.2	mg/L	2.0	1.0	2		11/15/14 11:33	7440-44-0	

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ANALYTICAL RESULTS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Sample: LG-3 Lab ID: 92224482003 Collected: 11/05/14 11:10 Received: 11/06/14 07:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:37	7440-38-2	
Barium	54.4	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:37	7440-39-3	
Cadmium	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:37	7440-43-9	
Chromium	0.71J	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:37	7440-47-3	
Copper	ND	ug/L	1.0	0.93	1	11/13/14 07:25	11/17/14 09:37	7440-50-8	
Iron	117	ug/L	10.0	6.9	1	11/13/14 07:25	11/18/14 14:00	7439-89-6	
Lead	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:37	7439-92-1	
Manganese	1350	ug/L	5.0	3.4	5	11/13/14 07:25	11/17/14 11:01	7439-96-5	D4
Selenium	0.86J	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:37	7782-49-2	
Silver	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:37	7440-22-4	
Zinc	ND	ug/L	5.0	2.5	1	11/13/14 07:25	11/17/14 09:37	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.10	1	11/14/14 11:58	11/17/14 13:12	7439-97-6	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	24.1	mg/L	0.20	0.10	10		11/07/14 17:22		H5
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	7.4	Std. Units	1.0	0.10	1		11/10/14 14:12		H6
5210B BOD, 5 day RAL	Analytical Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	11/07/14 09:43	11/12/14 12:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	1050	mg/L	25.0	25.0	1		11/11/14 14:42		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	27.8	mg/L	25.0	12.5	5		11/13/14 17:00	16887-00-6	
Fluoride	0.38	mg/L	0.25	0.24	5		11/13/14 17:00	16984-48-8	
Sulfate	171	mg/L	25.0	12.5	5		11/13/14 17:00	14808-79-8	
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	18.0J	mg/L	25.0	12.5	1		11/18/14 15:20		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	67.4	mg/L	2.0	1.0	2		11/15/14 11:46	7440-44-0	

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ANALYTICAL RESULTS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Sample: LG-7 Lab ID: 92224482004 Collected: 11/05/14 12:45 Received: 11/06/14 07:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:41	7440-38-2	
Barium	260	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:41	7440-39-3	
Cadmium	0.088J	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:41	7440-43-9	
Chromium	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:41	7440-47-3	
Copper	ND	ug/L	1.0	0.93	1	11/13/14 07:25	11/17/14 09:41	7440-50-8	
Iron	1600	ug/L	10.0	6.9	1	11/13/14 07:25	11/18/14 14:02	7439-89-6	
Lead	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:41	7439-92-1	
Manganese	4000	ug/L	10.0	6.9	10	11/13/14 07:25	11/17/14 11:05	7439-96-5	D4
Selenium	1.0	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:41	7782-49-2	
Silver	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:41	7440-22-4	
Zinc	ND	ug/L	5.0	2.5	1	11/13/14 07:25	11/17/14 09:41	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.10	1	11/14/14 11:56	11/17/14 13:14	7439-97-6	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	2.3	mg/L	0.020	0.010	1		11/06/14 16:34		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	7.0	Std. Units	1.0	0.10	1		11/10/14 14:12		H6
5210B BOD, 5 day RAL	Analytical Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	11/07/14 09:43	11/12/14 12:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	1630	mg/L	250	250	1		11/11/14 14:43		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	29.5	mg/L	25.0	12.5	5		11/13/14 17:21	16887-00-6	
Fluoride	ND	mg/L	0.25	0.24	5		11/13/14 17:21	16984-48-8	
Sulfate	212	mg/L	25.0	12.5	5		11/13/14 17:21	14808-79-8	
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	35.0	mg/L	25.0	12.5	1		11/18/14 15:20		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	128	mg/L	4.0	2.0	4		11/15/14 11:58	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Sample: Dup-1 Lab ID: 92224482005 Collected: 11/05/14 00:00 Received: 11/06/14 07:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:44	7440-38-2	
Barium	88.8	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:44	7440-39-3	
Cadmium	0.10	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:44	7440-43-9	
Chromium	1.4	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:44	7440-47-3	
Copper	2.5	ug/L	1.0	0.93	1	11/13/14 07:25	11/17/14 09:44	7440-50-8	
Iron	3970	ug/L	10.0	6.9	1	11/13/14 07:25	11/18/14 14:20	7439-89-6	
Lead	1.4	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:44	7439-92-1	
Manganese	399	ug/L	1.0	0.69	1	11/13/14 07:25	11/17/14 09:44	7439-96-5	
Selenium	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:44	7782-49-2	
Silver	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:44	7440-22-4	
Zinc	ND	ug/L	5.0	2.5	1	11/13/14 07:25	11/17/14 09:44	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.10	1	11/14/14 11:56	11/17/14 13:16	7439-97-6	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.020	0.010	1		11/06/14 16:17		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	7.8	Std. Units	1.0	0.10	1		11/10/14 14:12		H6
5210B BOD, 5 day RAL	Analytical Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	11/07/14 09:18	11/12/14 12:10		H1
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	151	mg/L	25.0	25.0	1		11/11/14 14:43		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	3.6J	mg/L	5.0	2.5	1		11/13/14 17:43	16887-00-6	
Fluoride	0.16	mg/L	0.050	0.047	1		11/13/14 17:43	16984-48-8	
Sulfate	8.9	mg/L	5.0	2.5	1		11/13/14 17:43	14808-79-8	
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	21.0J	mg/L	25.0	12.5	1		11/18/14 15:20		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	26.9	mg/L	1.0	0.50	1		11/14/14 19:19	7440-44-0	

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ANALYTICAL RESULTS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Sample: LG-1 Lab ID: 92224482006 Collected: 11/05/14 14:15 Received: 11/06/14 07:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:47	7440-38-2	
Barium	88.4	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:47	7440-39-3	
Cadmium	0.17	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:47	7440-43-9	
Chromium	1.7	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:47	7440-47-3	
Copper	3.2	ug/L	1.0	0.93	1	11/13/14 07:25	11/17/14 09:47	7440-50-8	
Iron	3810	ug/L	10.0	6.9	1	11/13/14 07:25	11/18/14 14:22	7439-89-6	
Lead	1.8	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:47	7439-92-1	
Manganese	362	ug/L	1.0	0.69	1	11/13/14 07:25	11/17/14 09:47	7439-96-5	
Selenium	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:47	7782-49-2	
Silver	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:47	7440-22-4	
Zinc	2.5J	ug/L	5.0	2.5	1	11/13/14 07:25	11/17/14 09:47	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.10	1	11/14/14 11:56	11/17/14 13:18	7439-97-6	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.020	0.010	1		11/06/14 16:35		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	6.8	Std. Units	1.0	0.10	1		11/10/14 14:12		H6
5210B BOD, 5 day RAL	Analytical Method: SM 5210B								
BOD, 5 day	3.3	mg/L	2.0	2.0	1	11/07/14 09:43	11/12/14 12:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	152	mg/L	25.0	25.0	1		11/11/14 14:43		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	3.6J	mg/L	5.0	2.5	1		11/13/14 18:04	16887-00-6	
Fluoride	0.16	mg/L	0.050	0.047	1		11/13/14 18:04	16984-48-8	
Sulfate	8.8	mg/L	5.0	2.5	1		11/13/14 18:04	14808-79-8	
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	16.0J	mg/L	25.0	12.5	1		11/18/14 15:20		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	25.2	mg/L	1.0	0.50	1		11/14/14 19:31	7440-44-0	

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QUALITY CONTROL DATA

Project: IP Roanoke Rapids
Pace Project No.: 92224482

QC Batch: MERP/5096 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

METHOD BLANK: 1057311 Matrix: Water
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	11/17/14 12:24	

LABORATORY CONTROL SAMPLE: 1057312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2	2.1	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1057313 1057314

Parameter	Units	35162083002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	0.10U	2	2	1.6	1.7	80	84	75-125	5	20	

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QUALITY CONTROL DATA

Project: IP Roanoke Rapids
Pace Project No.: 92224482

QC Batch: MPRP/21478 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

METHOD BLANK: 1055707 Matrix: Water
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	1.0	11/17/14 09:17	
Barium	ug/L	ND	1.0	11/17/14 09:17	
Cadmium	ug/L	ND	0.10	11/17/14 09:17	
Chromium	ug/L	ND	1.0	11/17/14 09:17	
Copper	ug/L	ND	1.0	11/17/14 09:17	
Iron	ug/L	ND	10.0	11/18/14 13:45	
Lead	ug/L	ND	1.0	11/17/14 09:17	
Manganese	ug/L	ND	1.0	11/17/14 09:17	
Selenium	ug/L	ND	1.0	11/17/14 09:17	
Silver	ug/L	ND	0.10	11/17/14 09:17	
Zinc	ug/L	ND	5.0	11/17/14 09:17	

LABORATORY CONTROL SAMPLE: 1055708

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	50	48.3	97	80-120	
Barium	ug/L	50	47.8	96	80-120	
Cadmium	ug/L	5	4.8	96	80-120	
Chromium	ug/L	50	47.9	96	80-120	
Copper	ug/L	50	48.1	96	80-120	
Iron	ug/L	500	487	97	80-120	
Lead	ug/L	50	47.8	96	80-120	
Manganese	ug/L	50	48.2	96	80-120	
Selenium	ug/L	50	48.3	97	80-120	
Silver	ug/L	5	4.8	96	80-120	
Zinc	ug/L	250	242	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1055709 1055710

Parameter	Units	92224482001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	50	50	45.9	47.2	91	94	75-125	3	20	
Barium	ug/L	562	50	50	600	610	77	97	75-125	2	20	D4
Cadmium	ug/L	ND	5	5	4.4	4.4	89	88	75-125	1	20	
Chromium	ug/L	3.5	50	50	46.7	49.2	90	91	75-125	1	20	
Copper	ug/L	ND	50	50	40.9	41.9	81	83	75-125	2	20	
Iron	ug/L	14200	500	500	13600	14200	-78	12	75-125	3	20	D4,M6
Lead	ug/L	ND	50	50	49.4	50.8	98	100	75-125	2	20	

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QUALITY CONTROL DATA

Project: IP Roanoke Rapids
Pace Project No.: 92224482

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1055709 1055710

Parameter	Units	92224482001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese	ug/L	1180	50	50	1260	1250	160	134	75-125	1	20	D4,M1
Selenium	ug/L	ND	50	50	44.4	45.8	88	91	75-125	3	20	
Silver	ug/L	ND	5	5	4.1	4.2	81	84	75-125	3	20	
Zinc	ug/L	ND	250	250	203	209	80	83	75-125	3	20	

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QUALITY CONTROL DATA

Project: IP Roanoke Rapids
Pace Project No.: 92224482

QC Batch: RWET/7471 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.Raleigh
Associated Lab Samples: 92224482001, 92224482002, 92224482004, 92224482005, 92224482006

METHOD BLANK: 1324048 Matrix: Water
Associated Lab Samples: 92224482001, 92224482002, 92224482004, 92224482005, 92224482006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.020	11/06/14 16:13	

LABORATORY CONTROL SAMPLE: 1324049

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	2.5	2.5	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1324050 1324051

Parameter	Units	92224482005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Nitrate	mg/L	ND	2.5	2.5	1.9	1.9	78	77	90-110	0	7	M1

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QUALITY CONTROL DATA

Project: IP Roanoke Rapids
Pace Project No.: 92224482

QC Batch: RWET/7490
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.Raleigh
Associated Lab Samples: 92224482003

METHOD BLANK: 1326228 Matrix: Water
Associated Lab Samples: 92224482003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.020	11/07/14 17:01	

LABORATORY CONTROL SAMPLE: 1326229

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	2.5	2.7	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1326232 1326233

Parameter	Units	92224482003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Nitrate	mg/L	24.1	2.5	2.5	26.4	26.4	92	92	90-110	0	7	H1

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QUALITY CONTROL DATA

Project: IP Roanoke Rapids
Pace Project No.: 92224482

QC Batch: RWET/7493 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH Raleigh
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

SAMPLE DUPLICATE: 1326420

Parameter	Units	92224482001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	0	10	H6

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QUALITY CONTROL DATA

Project: IP Roanoke Rapids
Pace Project No.: 92224482

QC Batch: RWET/7473 Analysis Method: SM 5210B
QC Batch Method: SM 5210B Analysis Description: 5210B BOD, 5 day RAL
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

METHOD BLANK: 1324807 Matrix: Water
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
BOD, 5 day	mg/L	ND	2.0	11/12/14 12:10	

LABORATORY CONTROL SAMPLE: 1324808

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
BOD, 5 day	mg/L	198	170	86	84.5-115.4	

SAMPLE DUPLICATE: 1324809

Parameter	Units	92224482005 Result	Dup Result	RPD	Max RPD	Qualifiers
BOD, 5 day	mg/L	ND	ND		10	

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QUALITY CONTROL DATA

Project: IP Roanoke Rapids
Pace Project No.: 92224482

QC Batch: WET/34212 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

METHOD BLANK: 1327330 Matrix: Water
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	11/11/14 14:41	

LABORATORY CONTROL SAMPLE: 1327331

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	248	98	90-110	

SAMPLE DUPLICATE: 1327332

Parameter	Units	92224482001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1830	1880	3	10	

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QUALITY CONTROL DATA

Project: IP Roanoke Rapids
Pace Project No.: 92224482

QC Batch: WETA/41219 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

METHOD BLANK: 1056417 Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	5.0	11/13/14 13:05	
Fluoride	mg/L	ND	0.050	11/13/14 13:05	
Sulfate	mg/L	ND	5.0	11/13/14 13:05	

LABORATORY CONTROL SAMPLE: 1056418

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	48.7	97	90-110	
Fluoride	mg/L	5	4.9	99	90-110	
Sulfate	mg/L	50	48.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1056421 1056422

Parameter	Units	92224482002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.1J	50	50	49.4	49.3	93	92	90-110	.1	20	
Fluoride	mg/L	0.18	5	5	5.0	5.0	96	97	90-110	.6	20	
Sulfate	mg/L	98.3	50	50	165	165	133	133	90-110	.08	20	E

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1056419 1056420

Parameter	Units	35163187005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	48.0	50	50	103	103	110	110	90-110	.06	20	E
Fluoride	mg/L	0.12	5	5	5.1	5.2	101	101	90-110	.3	20	
Sulfate	mg/L	19.9	50	50	71.5	71.5	103	103	90-110	.01	20	

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QUALITY CONTROL DATA

Project: IP Roanoke Rapids
Pace Project No.: 92224482

QC Batch: WETA/20950 Analysis Method: SM 5220D
QC Batch Method: SM 5220D Analysis Description: 5220D COD
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

METHOD BLANK: 1332238 Matrix: Water
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	25.0	11/18/14 15:20	

LABORATORY CONTROL SAMPLE: 1332239

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	750	751	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1332240 1332241

Parameter	Units	92225126001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	322	750	750	1090	1090	103	102	90-110	0	3	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1332242 1332243

Parameter	Units	92225159002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	297	750	750	1210	1210	122	121	90-110	0	3	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: IP Roanoke Rapids
Pace Project No.: 92224482

QC Batch: WETA/20910 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B TOC
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

METHOD BLANK: 1330247 Matrix: Water
Associated Lab Samples: 92224482001, 92224482002, 92224482003, 92224482004, 92224482005, 92224482006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	11/14/14 17:11	

LABORATORY CONTROL SAMPLE: 1330248

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	24.8	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1330249 1330250

Parameter	Units	92224482001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	171	25	25	205	199	133	112	90-110	3	5	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1330251 1330252

Parameter	Units	92225522005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	15.3	25	25	37.1	36.9	87	86	90-110	1	5	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-O	Pace Analytical Services - Ormond Beach
PASI-R	Pace Analytical Services - Raleigh

ANALYTE QUALIFIERS

D4	Sample was diluted due to the presence of high levels of target analytes.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H1	Analysis conducted outside the EPA method holding time.
H5	Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.
H6	Analysis initiated outside of the 15 minute EPA recommended holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92224482001	LG-6	EPA 3010	MPRP/21478	EPA 6020	ICPM/8783
92224482002	LG-5	EPA 3010	MPRP/21478	EPA 6020	ICPM/8783
92224482003	LG-3	EPA 3010	MPRP/21478	EPA 6020	ICPM/8783
92224482004	LG-7	EPA 3010	MPRP/21478	EPA 6020	ICPM/8783
92224482005	Dup-1	EPA 3010	MPRP/21478	EPA 6020	ICPM/8783
92224482006	LG-1	EPA 3010	MPRP/21478	EPA 6020	ICPM/8783
92224482001	LG-6	EPA 7470	MERP/5096	EPA 7470	MERC/5090
92224482002	LG-5	EPA 7470	MERP/5096	EPA 7470	MERC/5090
92224482003	LG-3	EPA 7470	MERP/5096	EPA 7470	MERC/5090
92224482004	LG-7	EPA 7470	MERP/5096	EPA 7470	MERC/5090
92224482005	Dup-1	EPA 7470	MERP/5096	EPA 7470	MERC/5090
92224482006	LG-1	EPA 7470	MERP/5096	EPA 7470	MERC/5090
92224482001	LG-6	EPA 353.2	RWET/7471		
92224482002	LG-5	EPA 353.2	RWET/7471		
92224482003	LG-3	EPA 353.2	RWET/7490		
92224482004	LG-7	EPA 353.2	RWET/7471		
92224482005	Dup-1	EPA 353.2	RWET/7471		
92224482006	LG-1	EPA 353.2	RWET/7471		
92224482001	LG-6	SM 4500-H+B	RWET/7493		
92224482002	LG-5	SM 4500-H+B	RWET/7493		
92224482003	LG-3	SM 4500-H+B	RWET/7493		
92224482004	LG-7	SM 4500-H+B	RWET/7493		
92224482005	Dup-1	SM 4500-H+B	RWET/7493		
92224482006	LG-1	SM 4500-H+B	RWET/7493		
92224482001	LG-6	SM 5210B	RWET/7473	SM 5210B	RWET/7488
92224482002	LG-5	SM 5210B	RWET/7473	SM 5210B	RWET/7488
92224482003	LG-3	SM 5210B	RWET/7473	SM 5210B	RWET/7488
92224482004	LG-7	SM 5210B	RWET/7473	SM 5210B	RWET/7488
92224482005	Dup-1	SM 5210B	RWET/7473	SM 5210B	RWET/7488
92224482006	LG-1	SM 5210B	RWET/7473	SM 5210B	RWET/7488
92224482001	LG-6	SM 2540C	WET/34212		
92224482002	LG-5	SM 2540C	WET/34212		
92224482003	LG-3	SM 2540C	WET/34212		
92224482004	LG-7	SM 2540C	WET/34212		
92224482005	Dup-1	SM 2540C	WET/34212		
92224482006	LG-1	SM 2540C	WET/34212		
92224482001	LG-6	EPA 300.0	WETA/41219		
92224482002	LG-5	EPA 300.0	WETA/41219		
92224482003	LG-3	EPA 300.0	WETA/41219		
92224482004	LG-7	EPA 300.0	WETA/41219		
92224482005	Dup-1	EPA 300.0	WETA/41219		
92224482006	LG-1	EPA 300.0	WETA/41219		
92224482001	LG-6	SM 5220D	WETA/20950		
92224482002	LG-5	SM 5220D	WETA/20950		

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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92224482003	LG-3	SM 5220D	WETA/20950		
92224482004	LG-7	SM 5220D	WETA/20950		
92224482005	Dup-1	SM 5220D	WETA/20950		
92224482006	LG-1	SM 5220D	WETA/20950		
92224482001	LG-6	SM 5310B	WETA/20910		
92224482002	LG-5	SM 5310B	WETA/20910		
92224482003	LG-3	SM 5310B	WETA/20910		
92224482004	LG-7	SM 5310B	WETA/20910		
92224482005	Dup-1	SM 5310B	WETA/20910		
92224482006	LG-1	SM 5310B	WETA/20910		

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Pace Analytical	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: April 04, 2013 Page 1 of 2
	Document No.: F-RAL-CS-001-rev.02	Issuing Authorities: Pace Asheville Quality Office

Client Name: Earthcon

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☑ Raleigh

Courier (Circle): Fed Ex UPS USPS Client Commercial (Pace) Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals Intact: ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Circle Thermometer Used: IR Gun S/N:122085387 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

IR Gun Back Up S/N:122085371

Temp Correction Factor: Add / Subtract 0.0 C

Corrected Cooler Temp.: 4.1 C

Biological Tissue is Frozen: Yes No (N/A)

Temp should be above freezing to 6°C

Comments:

Date and initials of person examining contents / Preservation check: 11/6/14

Chain of Custody Present:	☑Yes	☐No	☐N/A 1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A 2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A 3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A 4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A 5.
Short Hold Time Analysis (<72hr):	☑Yes	☐No	☐N/A 6. bod, nitrate
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A 7.
Sufficient Volume:	☑Yes	☐No	☐N/A 8.
Correct Containers Used:	☑Yes	☐No	☐N/A 9.
-Pace Containers Used:	☑Yes	☐No	☐N/A
Containers Intact:	☑Yes	☐No	☐N/A 10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A 11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: WT	☑Yes	☐No	☐N/A 12.
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A 13.
All containers needing preservation are found to be in compliance with EPA recommendation. exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes	☐No	☐N/A
	☐Yes	☐No	
Samples checked for dechlorination:	☑Yes	☐No	☐N/A 14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A 15.
Trip Blank Present:	☐Yes	☐No	☑N/A 16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A
Pace Trip Blank Lot # (if purchased):			

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution:_____

SCURF /SRF Review:: NMG Date: 11-6-14

WO# : 92224482

92224482

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of 1783549

Section A Required Client Information:
Company: Earth Cov SITE
Address: 1650 Hwy 411 NE Ste 100
Marietta, Ga 30062
Email To: PRamsey@EarthCov.com
Phone: 770-973-2100 Fax: 770-973-7375
Requested Due Date/TAT: Standard

Section B Required Project Information:
Report To: Peter Ramsey
Copy To:
Purchase Order No.:
Project Name: JP Roanoke Rehab
Project Number:

Section C Invoice Information:
Attention: Peter Ramsey
Company Name: Same
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #: 7101-1

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER
Site Location STATE:

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: TCL VOA	TCL SVOA	TCL Pesticides	TCL Herbicides	TAL Metals	Nitrate	TOC	TDS	Residual Chlorine (Y/N)
1	LG-6	WT	G	11/5/14	0845				10	4	2	1					1	1	1	1	1	1	3	1		
2	LG-5	WT	G	11/5/14	0940				10	4	2	1					1	1	1	1	1	1	3	1		
3	LG-3	WT	G	11/5/14	1110				10	4	2	1					1	1	1	1	1	1	3	1		
4	LG-7	WT	G	11/5/14	1245				10	4	2	1					1	1	1	1	1	1	3	1		
5	DUP-1	WT	G	11/5/14	—				10	4	2	1					1	1	1	1	1	1	3	1		
6	LG-1	WT	G	11/5/14	1445				10	4	2	1					1	1	1	1	1	1	3	1		
7	TRIP BLANK H2O																									
8																										
9																										
10																										
11																										
12																										

Requested Analysis Filtered (Y/N)

Pace Project No./ Lab I.D.: 92224482
001
002
003
004
005
006

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Kevin Lai Earth Cov	11/5/14	1455	David Spencer Pace	11.5.14	1567	
	David Spencer / Pace	11-6-14	0725	Nicole Gardner Pace	11/6/14	0725	4.1 Y N Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin M Lai
SIGNATURE of SAMPLER: Kevin Lai
DATE Signed (MM/DD/YY): 11/5/14

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

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 21, 2014

Nicole Gaslorowski
Pace Analytical Services Inc
9800 Kincey Avenue Suite 100
Huntersville, NC 28078
TEL: (704) 875-9092
FAX: (704) 875-9091

RE: 92224482

Order No.: 14110519

Dear Nicole Gaslorowski:

Summit Environmental Technologies, Inc. received 6 sample(s) on 11/7/2014 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, Arizona AZ0788, 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 Drinking Water 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

Workorder Sample Summary

WO#: **14110519**
21-Nov-14

CLIENT: Pace Analytical Services Inc
Project: 92224482

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
14110519-001	92224482001		11/5/2014 8:15:00 AM	11/7/2014 10:15:00 AM	Non-Potable Water
14110519-002	92224482002		11/5/2014 9:40:00 AM	11/7/2014 10:15:00 AM	Non-Potable Water
14110519-003	92224482003		11/5/2014 11:10:00 AM	11/7/2014 10:15:00 AM	Non-Potable Water
14110519-004	92224482004		11/5/2014 12:45:00 PM	11/7/2014 10:15:00 AM	Non-Potable Water
14110519-005	92224482005		11/5/2014	11/7/2014 10:15:00 AM	Non-Potable Water
14110519-006	92224482006		11/5/2014 2:15:00 PM	11/7/2014 10:15:00 AM	Non-Potable Water

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Analytical Laboratories

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

Case Narrative

WO#: 14110519
Date: 11/21/2014

CLIENT: Pace Analytical Services Inc
Project: 92224482

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 Qualifier Field are values below the Limit of Quantitation (LOQ) but greater than the established Method Detection Limit (MDL).

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

WO#: 14110519
Date Reported: 11/21/2014
Company: Pace Analytical Services Inc
Address: 9800 Kincey Avenue Suite 100
Huntersville NC 28078
Received: 11/7/2014
Project#: 92224482

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92224482001	001	11/5/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/21/2014	CXS

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92224482002	002	11/5/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/21/2014	CXS

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92224482003	003	11/5/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/21/2014	CXS

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92224482004	004	11/5/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/21/2014	CXS

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92224482005	005	11/5/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/21/2014	CXS

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92224482006	006	11/5/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/21/2014	CXS

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.sumtek.com

QC SUMMARY REPORT

WO#: 14110519
21-Nov-14

Client: Pace Analytical Services Inc
Project: 92224482

BatchID: R28065

Sample ID MB-R28065	SampType: MBLK	TestCode: TOX_NPW(90	Units: mg/L	Prep Date:				RunNo: 28065		
Client ID: PBW	Batch ID: R28065	TestNo: SW9020		Analysis Date: 11/21/2014				SeqNo: 388789		
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-R28065	SampType: LCS	TestCode: TOX_NPW(90	Units: mg/L	Prep Date:				RunNo: 28065		
Client ID: LCSW	Batch ID: R28065	TestNo: SW9020		Analysis Date: 11/21/2014				SeqNo: 388790		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Halides	0.22	0.10	0.2000	0	110	70	130				

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	Analyzed with Calc Val < MDL

Original

Chain of Custody

Pace Analytical®

Workorder: 92224482 Workorder Name: IP Roanoka Rapids Results Requested 11/20/2014

Report / Invoice To	Subcontract To
Nicole Gasiorowski Pace Analytical Charlotte 9800 Kinsey Ave. Suite 100 Huntersville, NC 28078 Phone (704)875-9092 Email: nicole.gasiorowski@pacelabs.com	Summit P.O. WMG 14280

Requested Analysis

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers	TOX	LAB USE ONLY
1	LG-6	11/5/2014 08:15	92224482001	Water	1	X	
2	LG-5	11/5/2014 08:40	92224482002	Water	1	X	
3	LG-3	11/5/2014 11:10	92224482003	Water	1	X	
4	LG-7	11/5/2014 12:45	92224482004	Water	1	X	
5	Dup-1	11/5/2014 00:00	92224482005	Water	1	X	
6	LG-1	11/5/2014 14:15	92224482006	Water	1	X	

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	[illegible] PACE	11/6/14			
2					
3			SCA	11-7-14 1615	

Cooler Temperature on Receipt °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

14110519-001 006
CSL

Rev. 12
Date: 07/27/13

Summit Environmental Technologies, Inc.
Cooler Receipt Form

Initials of person inspecting cooler and samples: SC

Client: Pace (Charlotte) Order Number:

Date Received: 11-7-14 Time Received: 1015 Date cooler(s) opened and samples inspected: 11-7-14

Number of Coolers/Boxes: 1 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 plastic	(Y)	N	N/A
Ice: ✓ Blue Ice ____	(present)	absent	(melted) N/A
Sample Temperature IR Gun #180220458 CF 0 °C	0.6 °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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EarthCon Consultants, Inc.
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Building 100, Suite 106
Marietta, Georgia 30062

P: 770-973-2100
F: 770-973-7395
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Memorandum

Date:	December 23, 2014
To:	Peter Ramsey
From:	Mary Ann Brookshire
Subject:	Quality Assurance Review
Project:	International Paper - Roanoke Rapids, NC - Low Ground Landfill
Sampling Date:	November 5, 2014
Project Number:	25.20090383.14

1.0 Introduction

This memorandum presents the cursory validation of the water sample analyses listed in Table 1. The analyses were performed by Pace Analytical Services, Inc., 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
- Field QC sample results including field 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	92224482001	X	X
LG-5	92224482002	X	X
LG-3	92224482003	X	X
LG-7	92224482004	X	X
Dup-1	92224482005	X	X
LG-1	92224482006	X	X

[a] Total metals by methods 6020 and 7470 (USPEPA 1996)
[b] BOD by Method SM5210B, TOC by SM 5310B, COD by Method 5220D, pH by Method 4500-H+B, TDS by Method SM 2540C, TOX by Method 9020 nitrate by Method EPA 353.2, and 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.

2.2 Metals Analyses

The samples listed on Table 1 were analyzed for total iron, manganese, 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 the 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. 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 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

MS/MSDs were analyzed at the required frequency of one per digestion batch. The recovery and RPD values for the MS/MSD are within the laboratory QC limits with the following exceptions.

- The MS and MSD recovery values were outside laboratory QC limits for barium, iron, and manganese. In accordance with Functional Guidelines criteria, data qualification is not required as the sample concentrations for these metals are greater than four times the spike values.

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. For sample results less than five times the PQL, the RPD is the absolute value between the duplicate samples and the QC limit is the PQL. The field duplicate RPD values are acceptable.

Analyte	Units	PQL	LG-1	Dup-1	RPD	QC Limit
Barium	ug/L	1.0	88.4	88.8	0.5	35
Cadmium	ug/L	0.10	0.17	0.10	0.07	0.10
Chromium	ug/L	1.0	1.7	1.4	0.3	1.0
Copper	ug/L	1.0	3.2	2.5	0.7	1.0
Iron	ug/L	100	3810	3970	4.1	35
Lead	ug/L	1.0	1.8	1.4	0.4	1.0
Manganese	ug/L	1.0	362	399	9.7	35
Zinc	ug/L	5.0	2.5 J	<5.0	NC	5.0

NC – Not calculated. The result of at least one of the duplicate samples is below the PQL.

2.2.7 Overall Assessment of Data Usability

The usability of the data is based on the EPA guidance documents noted previously. Based upon the information presented here, the data are acceptable without qualification.

2.3 General Chemistry Analyses

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

2.3.1 Holding Times

The samples were analyzed within the method-required holding times with the following exceptions.

- The pH analyses were performed beyond the method holding time of ASAP (usually interpreted as less than 15 minutes). The pH result of each sample is qualified as estimated (J).
- The nitrate for sample LG-3 was analyzed 6 hours past the 48-hour holding time. The nitrate result for LG-3 is qualified as estimated (J).
- The result for BOD in sample Dup-1 was qualified by the laboratory for missing the holding time. A sampling time of 0:00 was recorded for the duplicate sample to avoid identification of the duplicate sample. Because the actual time of collection was 11/5/14 at 14:15, the holding time was met.

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 with the following exceptions.

- 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.
- The recovery values for nitrate in samples Dup-1 MS and MSD are 78 and 77 percent, which are below the 90 to 110 percent QC limit. The nitrate result for Dup-1 is qualified as estimated detection limit (UJ) and may be biased low.

- The sulfate recovery values for LG-5 MS and MSD are both 133 percent, which exceeds the laboratory QC limit of 90 to 110 percent. The sulfate result for LG-5 is qualified as estimated (J) and may be biased high.
- The COD recovery values for a batch MS/MSD sample are 122 and 121 percent, which exceed the 90 to 110 percent laboratory QC limit. Data qualification is not required as the batch sample does not reflect the sample matrix. The LCS recovery is within laboratory QC limits demonstrating the analytical system is in-control.
- The TOC recovery values for LG-6 MS and MSD are 133 and 112 percent, respectively, which exceed the 90 to 110 percent laboratory QC limit. The TOC result for LG-6 is qualified as estimated (J) and may be biased high.

2.3.4 Matrix Duplicate Analyses

Matrix duplicates were analyzed for pH, BOD, and TDS as required. The RPD values are within the laboratory QC limits.

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
Biochemical Oxygen Demand	mg/L	3.3	<2.0	NC
Total Organic Carbon	mg/L	25.2	26.9	6.5
Chemical Oxygen Demand	mg/L	16 J	21 J	NC
Chloride	mg/L	3.6 J	3.6 J	NC
Fluoride	mg/L	0.16	0.16	0.0
pH	S.U.	6.80	7.80	13.7
Total Dissolved Solids	mg/L	152	151	0.7
Sulfate	mg/L	8.8	8.9	1.1

NC – Not calculated. One or more results is below the PQL

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	pH	J	Analysis holding time exceeded
LG-5	pH	J	Analysis holding time exceeded
LG-3	pH	J	Analysis holding time exceeded
LG-7	pH	J	Analysis holding time exceeded
DUP-1	pH	J	Analysis holding time exceeded
LG-1	pH	J	Analysis holding time exceeded
LG-3	Nitrate Nitrogen	J	Analysis holding time exceeded
DUP-1	Nitrate Nitrogen	UJ	MS/MSD recovery < QC limits
LG-5	Sulfate	J	MS/MSD recovery > QC limits
LG-6	TOC	J	MS/MSD recovery > QC limits

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Sample: LG-6 Lab ID: 92224482001 Collected: 11/05/14 08:15 Received: 11/06/14 07:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/18/14 13:50	7440-38-2	
Barium	562	ug/L	1.0	0.50	1	11/13/14 07:25	11/18/14 13:50	7440-39-3	D4
Cadmium	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/18/14 13:50	7440-43-9	
Chromium	3.5	ug/L	1.0	0.50	1	11/13/14 07:25	11/18/14 13:50	7440-47-3	
Copper	ND	ug/L	1.0	0.93	1	11/13/14 07:25	11/18/14 13:50	7440-50-8	
Iron	14200	ug/L	100	69.4	10	11/13/14 07:25	11/19/14 08:59	7439-89-6	D4,M6
Lead	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/18/14 13:50	7439-92-1	
Manganese	1180	ug/L	1.0	0.69	1	11/13/14 07:25	11/18/14 13:50	7439-96-5	D4,M1
Selenium	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/18/14 13:50	7782-49-2	
Silver	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/18/14 13:50	7440-22-4	
Zinc	ND	ug/L	5.0	2.5	1	11/13/14 07:25	11/17/14 09:24	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.10	1	11/14/14 11:58	11/17/14 13:08	7439-97-6	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	1.1	mg/L	0.020	0.010	1		11/06/14 16:23		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	7.2	Std. Units J	1.0	0.10	1		11/10/14 14:12		H6
5210B BOD, 5 day RAL	Analytical Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	11/07/14 09:18	11/12/14 12:10		H1
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	1830	mg/L	250	250	1		11/11/14 14:41		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	13.6	mg/L	5.0	2.5	1		11/15/14 10:56	16887-00-6	
Fluoride	0.31	mg/L	0.050	0.047	1		11/15/14 10:56	16984-48-8	
Sulfate	48.4	mg/L	5.0	2.5	1		11/15/14 10:56	14808-79-8	
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	58.0	mg/L	25.0	12.5	1		11/18/14 15:20		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	171	mg/L J	5.0	2.5	5		11/15/14 10:54	7440-44-0	M1

MAB
12/23/14

REPORT OF LABORATORY ANALYSIS

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Sample: LG-5 Lab ID: 92224482002 Collected: 11/05/14 09:40 Received: 11/06/14 07:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	2.4	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:34	7440-38-2	
Barium	114	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:34	7440-39-3	
Cadmium	0.091J	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:34	7440-43-9	
Chromium	3.7	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:34	7440-47-3	
Copper	1.9	ug/L	1.0	0.93	1	11/13/14 07:25	11/17/14 09:34	7440-50-8	
Iron	20800	ug/L	100	69.4	10	11/13/14 07:25	11/18/14 16:05	7439-89-6	D4
Lead	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:34	7439-92-1	
Manganese	7100	ug/L	20.0	13.8	20	11/13/14 07:25	11/17/14 10:58	7439-96-5	D4
Selenium	0.55J	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:34	7782-49-2	
Silver	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:34	7440-22-4	
Zinc	6.3	ug/L	5.0	2.5	1	11/13/14 07:25	11/17/14 09:34	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.10	1	11/14/14 11:56	11/17/14 13:10	7439-97-6	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.020	0.010	1		11/06/14 16:24		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	6.3	Std. Units J	1.0	0.10	1		11/10/14 14:12		H6
5210B BOD, 5 day RAL	Analytical Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	11/07/14 09:18	11/12/14 12:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	380	mg/L	25.0	25.0	1		11/11/14 14:42		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	3.1J	mg/L	5.0	2.5	1		11/13/14 15:56	16887-00-6	
Fluoride	0.18	mg/L	0.050	0.047	1		11/13/14 15:56	16984-48-8	
Sulfate	98.3	mg/L J	10.0	5.0	2		11/15/14 12:00	14808-79-8	
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	48.0	mg/L	25.0	12.5	1		11/18/14 15:20		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	74.2	mg/L	2.0	1.0	2		11/15/14 11:33	7440-44-0	

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Sample: LG-3 Lab ID: 92224482003 Collected: 11/05/14 11:10 Received: 11/06/14 07:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:37	7440-38-2	
Barium	54.4	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:37	7440-39-3	
Cadmium	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:37	7440-43-9	
Chromium	0.71J	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:37	7440-47-3	
Copper	ND	ug/L	1.0	0.93	1	11/13/14 07:25	11/17/14 09:37	7440-50-8	
Iron	117	ug/L	10.0	6.9	1	11/13/14 07:25	11/18/14 14:00	7439-89-6	
Lead	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:37	7439-92-1	
Manganese	1350	ug/L	5.0	3.4	5	11/13/14 07:25	11/17/14 11:01	7439-96-5	D4
Selenium	0.86J	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:37	7782-49-2	
Silver	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:37	7440-22-4	
Zinc	ND	ug/L	5.0	2.5	1	11/13/14 07:25	11/17/14 09:37	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.10	1	11/14/14 11:56	11/17/14 13:12	7439-97-6	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	24.1	mg/L J	0.20	0.10	10		11/07/14 17:22		H5
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	7.4	Std. Units J	1.0	0.10	1		11/10/14 14:12		H6
5210B BOD, 5 day RAL	Analytical Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	11/07/14 09:43	11/12/14 12:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	1050	mg/L	25.0	25.0	1		11/11/14 14:42		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	27.8	mg/L	25.0	12.5	5		11/13/14 17:00	16887-00-6	
Fluoride	0.38	mg/L	0.25	0.24	5		11/13/14 17:00	16984-48-8	
Sulfate	171	mg/L	25.0	12.5	5		11/13/14 17:00	14808-79-8	
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	18.0J	mg/L	25.0	12.5	1		11/18/14 15:20		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	67.4	mg/L	2.0	1.0	2		11/15/14 11:46	7440-44-0	

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ANALYTICAL RESULTS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Sample: LG-7 Lab ID: 92224482004 Collected: 11/05/14 12:45 Received: 11/06/14 07:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:41	7440-38-2	
Barium	260	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:41	7440-39-3	
Cadmium	0.088J	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:41	7440-43-9	
Chromium	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:41	7440-47-3	
Copper	ND	ug/L	1.0	0.93	1	11/13/14 07:25	11/17/14 09:41	7440-50-8	
Iron	1600	ug/L	10.0	6.9	1	11/13/14 07:25	11/18/14 14:02	7439-89-6	
Lead	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:41	7439-92-1	
Manganese	4000	ug/L	10.0	6.9	10	11/13/14 07:25	11/17/14 11:05	7439-96-5	D4
Selenium	1.0	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:41	7782-49-2	
Silver	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:41	7440-22-4	
Zinc	ND	ug/L	5.0	2.5	1	11/13/14 07:25	11/17/14 09:41	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.10	1	11/14/14 11:58	11/17/14 13:14	7439-97-6	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	2.3	mg/L	0.020	0.010	1		11/06/14 16:34		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	7.0	Std. Units J	1.0	0.10	1		11/10/14 14:12		H6
5210B BOD, 5 day RAL	Analytical Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	11/07/14 09:43	11/12/14 12:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	1630	mg/L	250	250	1		11/11/14 14:43		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	29.5	mg/L	25.0	12.5	5		11/13/14 17:21	16887-00-6	
Fluoride	ND	mg/L	0.25	0.24	5		11/13/14 17:21	16984-48-8	
Sulfate	212	mg/L	25.0	12.5	5		11/13/14 17:21	14808-79-8	
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	35.0	mg/L	25.0	12.5	1		11/18/14 15:20		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	128	mg/L	4.0	2.0	4		11/15/14 11:58	7440-44-0	

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REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Sample: Dup-1 Lab ID: 92224482005 Collected: 11/05/14 00:00 Received: 11/06/14 07:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:44	7440-38-2	
Barium	88.8	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:44	7440-39-3	
Cadmium	0.10	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:44	7440-43-9	
Chromium	1.4	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:44	7440-47-3	
Copper	2.5	ug/L	1.0	0.93	1	11/13/14 07:25	11/17/14 09:44	7440-50-8	
Iron	3970	ug/L	10.0	6.9	1	11/13/14 07:25	11/18/14 14:20	7439-89-6	
Lead	1.4	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:44	7439-92-1	
Manganese	399	ug/L	1.0	0.69	1	11/13/14 07:25	11/17/14 09:44	7439-96-5	
Selenium	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:44	7782-49-2	
Silver	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:44	7440-22-4	
Zinc	ND	ug/L	5.0	2.5	1	11/13/14 07:25	11/17/14 09:44	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.10	1	11/14/14 11:56	11/17/14 13:16	7439-97-6	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L UJ	0.020	0.010	1		11/06/14 16:17		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	7.6	Std. Units J	1.0	0.10	1		11/10/14 14:12		H6
5210B BOD, 5 day RAL	Analytical Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	11/07/14 09:18	11/12/14 12:10		H1
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	151	mg/L	25.0	25.0	1		11/11/14 14:43		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	3.6J	mg/L	5.0	2.5	1		11/13/14 17:43	16887-00-6	
Fluoride	0.16	mg/L	0.050	0.047	1		11/13/14 17:43	16984-48-8	
Sulfate	8.9	mg/L	5.0	2.5	1		11/13/14 17:43	14808-79-8	
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	21.0J	mg/L	25.0	12.5	1		11/18/14 15:20		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	26.9	mg/L	1.0	0.50	1		11/14/14 19:19	7440-44-0	

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: IP Roanoke Rapids
Pace Project No.: 92224482

Sample: LG-1 Lab ID: 92224482006 Collected: 11/05/14 14:15 Received: 11/06/14 07:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:47	7440-38-2	
Barium	88.4	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:47	7440-39-3	
Cadmium	0.17	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:47	7440-43-9	
Chromium	1.7	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:47	7440-47-3	
Copper	3.2	ug/L	1.0	0.93	1	11/13/14 07:25	11/17/14 09:47	7440-50-8	
Iron	3810	ug/L	10.0	6.9	1	11/13/14 07:25	11/18/14 14:22	7439-89-6	
Lead	1.8	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:47	7439-92-1	
Manganese	362	ug/L	1.0	0.69	1	11/13/14 07:25	11/17/14 09:47	7439-96-5	
Selenium	ND	ug/L	1.0	0.50	1	11/13/14 07:25	11/17/14 09:47	7782-49-2	
Silver	ND	ug/L	0.10	0.050	1	11/13/14 07:25	11/17/14 09:47	7440-22-4	
Zinc	2.5J	ug/L	5.0	2.5	1	11/13/14 07:25	11/17/14 09:47	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.10	1	11/14/14 11:56	11/17/14 13:18	7439-97-6	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.020	0.010	1		11/06/14 16:35		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	6.8	Std. Units J	1.0	0.10	1		11/10/14 14:12		H6
5210B BOD, 5 day RAL	Analytical Method: SM 5210B								
BOD, 5 day	3.3	mg/L	2.0	2.0	1	11/07/14 09:43	11/12/14 12:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	152	mg/L	25.0	25.0	1		11/11/14 14:43		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	3.6J	mg/L	5.0	2.5	1		11/13/14 18:04	16887-00-6	
Fluoride	0.16	mg/L	0.050	0.047	1		11/13/14 18:04	16984-48-8	
Sulfate	8.8	mg/L	5.0	2.5	1		11/13/14 18:04	14808-79-8	
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	16.0J	mg/L	25.0	12.5	1		11/18/14 15:20		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	25.2	mg/L	1.0	0.50	1		11/14/14 19:31	7440-44-0	

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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#: 14110519
Date Reported: 11/21/2014
Company: Pace Analytical Services Inc
Address: 9800 Kincey Avenue Suite 100
Huntersville NC 28078
Received: 11/7/2014
Project#: 92224482

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92224482001	001	11/5/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/21/2014	CXS

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92224482002	002	11/5/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/21/2014	CXS

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92224482003	003	11/5/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/21/2014	CXS

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92224482004	004	11/5/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/21/2014	CXS

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92224482005	005	11/5/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/21/2014	CXS

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
92224482006	006	11/5/2014	Total Organic Halides	ND	mg/L	Non-Potable Water	EPA 9020	1	0.10	11/21/2014	CXS

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