



Environmental Challenges
BUSINESS SOLUTIONS®

**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



June 23, 2015

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. 25.20090383.15**

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 May 2015 sampling event completed for the above referenced site. Also enclosed is the North Carolina (NC) Solid Waste Section summary table along with the laboratory report and the EarthCon Quality Assurance Review of the laboratory data.

The May 2015 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 (1,170 mg/L), MW-LG6 (1,800 mg/L) and MW-LG7 (1,580 mg/L) exceeded the NC 2L standard of 500 mg/L.
- The total iron results from four wells MW-LG1 (3,720 ug/L), MW-LG3 (614 ug/L), MW-LG5 (5,900 ug/L) and LG-6 (4,160 ug/L) exceeded the NC 2L standard of 300 ug/L.
- The total manganese results from the four wells MW-LG1 (622 ug/L), MW-LG3 (943 ug/L), MW-LG5 (2,250 ug/L) and MW-LG6 (1,590 ug/L) exceeded the NC 2L standard of 50 ug/L.
- The sulfate result from one well MW-LG7 (271 mg/L) exceeded the NC 2L standard of 250 mg/L.

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

- Cadmium, iron, manganese and TOX were detected in the equipment blank sample at concentrations of 0.14 ug/L, 10.1 ug/L, 0.90 ug/L and 0.02 mg/L, respectively. The cadmium results for LG-1, LG-3, LG-5, LG-6 and Dup-1 are qualified as not detected (U), the iron results for LG-7, is qualified as not detected (U) and the TOX results for LG-7 and Dup-1 are qualified as not detected (U).
- 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 result for BOD and nitrate nitrogen 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 5/11/15 at 19:40, the holding time was met.

The TDS, iron, manganese and sulfate 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. 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

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 | May 11, 2015 |

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

6/19/15

Affix NC Licensed Professional Geologist Seal

Signature

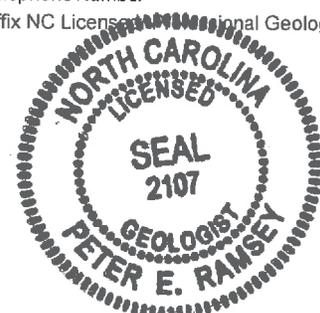
Date

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



NC Solid Waste Section Summary Table
Submitted to NCDENR on June 19, 2015
Samples Collected on 05/11/15 by EarthCon Consultants of North Carolina, P.C.
Prepared by BGM 06/16/15 and Checked by PER 06/16/15

| 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 | 05/11/2015 | 05/19/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 7440-39-3 | 15 | Barium, Total | 97.5 | ug/L | | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/19/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 7440-43-9 | 34 | Cadmium, Total | 0.1 | ug/L | U | EPA 6020 | 0.05 | 0.1 | | 1 | 05/11/2015 | 05/19/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 7440-47-3 | 51 | Chromium, Total | 1.5 | ug/L | | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/19/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 7440-50-8 | 54 | Copper, Total | 2.2 | ug/L | | EPA 6020 | 0.93 | 1 | | 1 | 05/11/2015 | 05/19/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 7439-92-1 | 131 | Lead, Total | 2 | ug/L | U | EPA 7470 | 0.5 | 1 | | 1 | 05/11/2015 | 05/19/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 7439-97-6 | 132 | Mercury, Total | 0.5 | ug/L | U | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/19/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 7782-49-2 | 183 | Selenium, Total | 0.5 | ug/L | U | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/19/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 7440-22-4 | 184 | Silver, Total | 0.05 | ug/L | U | EPA 6020 | 0.05 | 0.1 | | 1 | 05/11/2015 | 05/19/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 7440-66-6 | 213 | Zinc, Total | 3.1 | ug/L | J | EPA 6020 | 2.5 | 5 | | 1 | 05/11/2015 | 05/19/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 16887-00-6 | 301 | Chloride | 3400 | ug/L | J | EPA 300.0 | 2500 | 5000 | | 1 | 05/11/2015 | 05/18/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 14797-55-8 | 303 | Nitrate as Nitrogen | 10 | ug/L | U | EPA 353.2 | 10 | 20 | | 1 | 05/11/2015 | 05/18/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 16984-48-8 | 312 | Solids, Total Dissolved (TDS) | 160000 | ug/L | | SM 2540C | 25000 | 25000 | | 1 | 05/11/2015 | 05/13/2015 | 05/18/2015 | 527 |
| 42-03 | 4203-LG1 | 14808-79-8 | 315 | Fluoride Sulfate | 99 | ug/L | | EPA 300.0 | 34 | 50 | | 1 | 05/11/2015 | 05/18/2015 | 05/18/2015 | 527 |
| 42-03 | 4203-LG1 | 14808-79-8 | 316 | Biochemical Oxygen Demand (BOD) | 12600 | ug/L | | EPA 300.0 | 2500 | 5000 | | 1 | 05/11/2015 | 05/18/2015 | 05/18/2015 | 527 |
| 42-03 | 4203-LG1 | 14808-79-8 | 317 | Chemical Oxygen Demand (COD) | 2000 | ug/L | U | SM 5210B | 2000 | 2000 | | 1 | 05/11/2015 | 05/18/2015 | 05/18/2015 | 527 |
| 42-03 | 4203-LG1 | 12408-02-5 | 321 | pH | 15000 | PH | J | SM 4500-H+B | 12500 | 25000 | | 1 | 05/11/2015 | 05/20/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 7439-89-6 | 340 | Conductivity at 25 Degrees Celsius | 6.1 | uMHOS/cm | J | Field Collected | 1 | 1 | | 1 | 05/11/2015 | 05/14/2015 | 06/02/2015 | 527 |
| 42-03 | 4203-LG1 | 7439-89-6 | 342 | Iron, Total | 3720 | ug/L | | EPA 6020 | 6.9 | 10 | | 1 | 05/11/2015 | 05/19/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 7439-96-5 | 342 | Manganese, Total | 622 | ug/L | | EPA 6020 | 1.4 | 2 | | 2 | 05/11/2015 | 05/19/2015 | 05/20/2015 | 527 |
| 42-03 | 4203-LG1 | 7440-44-0 | 357 | Carbon, Total Organic (TOC) | 7000 | ug/L | | SM 5310B | 500 | 1000 | | 1 | 05/11/2015 | 05/15/2015 | 08/15/2015 | 527 |
| 42-03 | 4203-LG1 | 7440-44-0 | 396 | Halides, Total Organic (TOX) | 8.8 | ug/L | U | SW9020 | 8.8 | 100 | | 1 | 05/11/2015 | 05/15/2015 | 08/15/2015 | 527 |
| 42-03 | 4203-LG3 | 7440-38-2 | 14 | Arsenic, Total | 0.5 | ug/L | U | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 7440-39-3 | 15 | Barium, Total | 78.4 | ug/L | U | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 7440-43-9 | 34 | Cadmium, Total | 0.28 | ug/L | U | EPA 6020 | 0.05 | 0.1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 7440-47-3 | 51 | Chromium, Total | 0.81 | ug/L | J | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 7440-50-8 | 54 | Copper, Total | 0.93 | ug/L | U | EPA 6020 | 0.93 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 7439-92-1 | 131 | Lead, Total | 0.5 | ug/L | U | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 7439-97-6 | 132 | Mercury, Total | 0.1 | ug/L | U | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 7782-49-2 | 183 | Selenium, Total | 0.5 | ug/L | U | EPA 7470 | 0.1 | 0.2 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 7440-22-4 | 184 | Silver, Total | 0.05 | ug/L | U | EPA 6020 | 0.05 | 0.1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 7440-66-6 | 213 | Zinc, Total | 49300 | ug/L | U | EPA 6020 | 2.5 | 5 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 16887-00-6 | 301 | Chloride | 9600 | ug/L | U | EPA 300.0 | 2500 | 5000 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 14797-55-8 | 303 | Nitrate as Nitrogen | 1170000 | ug/L | | EPA 353.2 | 10 | 20 | | 1 | 05/11/2015 | 05/13/2015 | 05/16/2015 | 527 |
| 42-03 | 4203-LG3 | 16984-48-8 | 312 | Solids, Total Dissolved (TDS) | 230 | ug/L | | SM 2540C | 25000 | 25000 | | 1 | 05/11/2015 | 05/15/2015 | 05/15/2015 | 527 |
| 42-03 | 4203-LG3 | 14808-79-8 | 315 | Fluoride Sulfate | 108000 | ug/L | | EPA 300.0 | 34 | 50 | | 1 | 05/11/2015 | 05/16/2015 | 05/16/2015 | 527 |
| 42-03 | 4203-LG3 | 14808-79-8 | 316 | Biochemical Oxygen Demand (BOD) | 11300 | ug/L | | EPA 300.0 | 12500 | 25000 | | 5 | 05/11/2015 | 05/16/2015 | 05/16/2015 | 527 |
| 42-03 | 4203-LG3 | 14808-79-8 | 317 | Chemical Oxygen Demand (COD) | 17000 | ug/L | J | SM 5210B | 2000 | 2000 | | 1 | 05/11/2015 | 05/12/2015 | 05/17/2015 | 527 |
| 42-03 | 4203-LG3 | 12408-02-5 | 321 | pH | 6.4 | PH | J | SM 4500-H+B | 1 | 1 | | 1 | 05/11/2015 | 05/14/2015 | 05/14/2015 | 527 |
| 42-03 | 4203-LG3 | 7439-89-6 | 340 | Conductivity at 25 Degrees Celsius | 1678 | uMHOS/cm | J | Field Collected | 1 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/22/2015 | 527 |
| 42-03 | 4203-LG3 | 7439-89-6 | 342 | Iron, Total | 614 | ug/L | | EPA 6020 | 6.9 | 10 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 7439-96-5 | 342 | Manganese, Total | 943 | ug/L | | EPA 6020 | 3.4 | 5 | | 5 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG3 | 7440-44-0 | 357 | Carbon, Total Organic (TOC) | 15700 | ug/L | | SM 5310B | 500 | 1000 | | 1 | 05/11/2015 | 05/15/2015 | 05/15/2015 | 527 |
| 42-03 | 4203-LG3 | 7440-44-0 | 396 | Halides, Total Organic (TOX) | 100 | ug/L | U | SW9020 | -9 | 100 | | 1 | 05/11/2015 | 05/16/2015 | 05/22/2015 | 527 |
| 42-03 | 4203-LG5 | 7440-38-2 | 14 | Arsenic, Total | 2.6 | ug/L | | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG5 | 7440-39-3 | 15 | Barium, Total | 75.4 | ug/L | U | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG5 | 7440-43-9 | 34 | Cadmium, Total | 0.36 | ug/L | | EPA 6020 | 0.05 | 0.1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG5 | 7440-47-3 | 51 | Chromium, Total | 3.4 | ug/L | | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG5 | 7440-50-8 | 54 | Copper, Total | 2.3 | ug/L | | EPA 6020 | 0.93 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG5 | 7439-92-1 | 131 | Lead, Total | 0.5 | ug/L | U | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG5 | 7439-97-6 | 132 | Mercury, Total | 0.1 | ug/L | U | EPA 6020 | 0.5 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG5 | 7782-49-2 | 183 | Selenium, Total | 0.51 | ug/L | J | EPA 7470 | 0.1 | 0.2 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG5 | 7440-22-4 | 184 | Silver, Total | 0.05 | ug/L | U | EPA 6020 | 0.05 | 0.1 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG5 | 7440-66-6 | 213 | Zinc, Total | 14.6 | ug/L | U | EPA 6020 | 2.5 | 5 | | 1 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG5 | 16887-00-6 | 301 | Chloride | 2700 | ug/L | J | EPA 300.0 | 2500 | 5000 | | 1 | 05/11/2015 | 05/16/2015 | 05/16/2015 | 527 |
| 42-03 | 4203-LG5 | 14797-55-8 | 303 | Nitrate as Nitrogen | 80 | ug/L | | EPA 353.2 | 10 | 20 | | 1 | 05/11/2015 | 05/13/2015 | 05/16/2015 | 527 |
| 42-03 | 4203-LG5 | 16984-48-8 | 312 | Solids, Total Dissolved (TDS) | 251000 | ug/L | | SM 2540C | 25000 | 25000 | | 1 | 05/11/2015 | 05/15/2015 | 05/15/2015 | 527 |
| 42-03 | 4203-LG5 | 14808-79-8 | 315 | Fluoride Sulfate | 100 | ug/L | | EPA 300.0 | 34 | 50 | | 1 | 05/11/2015 | 05/16/2015 | 05/16/2015 | 527 |
| 42-03 | 4203-LG5 | 14808-79-8 | 316 | Biochemical Oxygen Demand (BOD) | 28700 | ug/L | | EPA 300.0 | 2500 | 5000 | | 1 | 05/11/2015 | 05/16/2015 | 05/16/2015 | 527 |
| 42-03 | 4203-LG5 | 14808-79-8 | 317 | Chemical Oxygen Demand (COD) | 2000 | ug/L | U | SM 5210B | 2000 | 2000 | | 1 | 05/11/2015 | 05/16/2015 | 05/16/2015 | 527 |
| 42-03 | 4203-LG5 | 12408-02-5 | 321 | pH | 30000 | PH | J | SM 4500-H+B | 12500 | 25000 | | 1 | 05/11/2015 | 05/14/2015 | 05/14/2015 | 527 |
| 42-03 | 4203-LG5 | 7439-89-6 | 340 | Conductivity at 25 Degrees Celsius | 6 | uMHOS/cm | J | Field Collected | 1 | 1 | | 1 | 05/11/2015 | 05/16/2015 | 05/16/2015 | 527 |
| 42-03 | 4203-LG5 | 7439-89-6 | 342 | Iron, Total | 345 | ug/L | | EPA 6020 | 34.7 | 50 | | 5 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG5 | 7439-96-5 | 342 | Manganese, Total | 5900 | ug/L | | EPA 6020 | 3.4 | 5 | | 5 | 05/11/2015 | 05/16/2015 | 05/19/2015 | 527 |
| 42-03 | 4203-LG5 | 7440-44-0 | 357 | Carbon, Total Organic (TOC) | 15100 | ug/L | | SM 5310B | 500 | 1000 | | 1 | 05/11/201 | | | |



Groundwater Sampling Record

| | | | |
|--------------------------|-----------------------------------|---|---------------------|
| WELL No. <u>KG-1</u> | PROJECT <u>20090383 WS</u> | LOCATION <u>Boonke Rapids NE</u> | DATE <u>5/11/15</u> |
| SAMPLE No. | PROJECT NAME <u>Boonke Rapids</u> | FIELD PERSONNEL/COMPANY <u>K. Davis</u> | /EarthCon |
| SAMPLE TIME: <u>1740</u> | SITE | FIELD CONDITIONS/WEATHER <u>Sunny 70°</u> | |

| | |
|--|---|
| Well Condition Inspection (circle one) cover: <input checked="" type="radio"/> locked not locked number: <input checked="" type="radio"/> legible not legible outer casing: <input checked="" type="radio"/> good fair poor inner casing: <input checked="" type="radio"/> good fair poor well photographed: <input checked="" type="radio"/> yes <input type="radio"/> no | Equipment Cleaning Procedures - potable water and phosphate-free soap <input checked="" type="checkbox"/> - potable water rinse - water rinse: distilled <input checked="" type="checkbox"/> deionized - solvent rinse: acetone hexane - air dry |
|--|---|

Casing Diameter: (circle one) 4" 6" Other: _____

Casing Volume Calculation: $(\pi r^2 h) \times 7.48 \text{ gal/ft}^3$
 Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47
 Casing Volume (liters/ft) for: 2" = 0.618; 4" = 2.47; 6" = 5.56

Depth to Water (feet): 7.01 Measuring Point Elevation (feet): RL
 Depth of Well (feet): 16.36 Groundwater Surface Elevation: _____
 Water Column (feet): 9.35 LNAPL present: _____ thickness: _____
 Casing Volume (gallons/liters): 1.52 DNAPL present: _____ thickness: _____
 Calculated Purge Volume (gallons/liters): 4.6 Remarks: _____
 Actual Purge Volume (gallons/liters): 3.75
 Pump Intake Depth (feet): ≈ 5' Ferrous Iron (mg/L): _____

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

| TIME 2400 hrs | CUMULATIVE VOLUME (gal) | TEMPERATURE (°C) | pH | DISSOLVED OXYGEN (mg/L) | ORP (mV) | CONDUCTIVITY (µs/cm) | TURBIDITY (NTU) | Depth to Water (Feet) | ODOR/COLOR/REMARKS |
|---------------|-------------------------|------------------|------|-------------------------|----------|----------------------|-----------------|-----------------------|--------------------|
| 0738 | 0 | | | | | | | | PURGE START |
| 0740 | — | 21.56 | 6.47 | 5.18 | -56.0 | 313 | 303.3 | 7.61 | |
| 0755 | 0.25 | 21.21 | 6.01 | 0.84 | -55.5 | 304 | 185.3 | 8.35 | |
| 0805 | 0.7 | 20.82 | 5.95 | 0.37 | -59.1 | 302 | 135.1 | 8.74 | |
| 0815 | 1.0 | 20.89 | 5.92 | 0.28 | -66.0 | 303 | 111.3 | 9.35 | |
| 0825 | 1.2 | 20.14 | 5.87 | 0.35 | -66.3 | 299 | 81.84 | 10.03 | |
| 0835 | 1.5 | 20.83 | 5.84 | 0.45 | -64.9 | 298 | 49.04 | 10.44 | |
| 0845 | 1.7 | 20.57 | 5.83 | 0.41 | -64.5 | 301 | 30.68 | 10.94 | |
| 0855 | 2.0 | 20.35 | 5.84 | 0.34 | -65.5 | 307 | 28.84 | 11.35 | |
| 0905 | 2.4 | 20.40 | 5.86 | 0.32 | -66.2 | 310 | 24.80 | 11.69 | |

Measurement and Sampling Equipment

| Type | Manufacturer | Model # | Calibration Date |
|----------------------|----------------------|-----------------------------|------------------|
| <u>DATA ANALYZER</u> | <u>YSI</u> | <u>556</u> | <u>5/11/15</u> |
| <u>TURBIDITY</u> | <u>HE SCIENTIFIC</u> | <u>MICROTRU 2000</u> | <u>5/11/15</u> |
| <u>SLURRY PUMP</u> | <u>QED</u> | <u>MKAP PUMP WELL URAND</u> | |

| SAMPLE NUMBER | ANALYTICAL METHOD | BOTTLE TYPE/ PRESERVATIVES | QA REMARKS |
|---------------|-------------------|----------------------------|------------|
| 1 | BOD | 1L PLASTIC / - | |
| 1 | COD | 125ml PLASTIC / H2SO4 | |
| 1 | DUMAS | 250ml PLASTIC / - | |
| 1 | ALUMINUM | 125ml PLASTIC / - | |
| 1 | TOX | 250 ml GLASS / - | |
| 1 | TDS / pH | 500ml PLASTIC / - | |

3 Metals Hg
 TOC 250ml PLASTIC / HNO3
 40ml GLASS / plus Acid

START purge - 1738
 END purge - 1906
 SAMPLE - 1940 DPA called



Groundwater Sampling Record

WELL No. LG-3 PROJECT # 25/20090303.16 LOCATION Ronwoko Rapids, NC DATE 5/12/15
 SAMPLE No. PROJECT NAME IF Ronwoko Rapids FIELD PERSONNEL/COMPANY R. Davis /EarthCon
 SAMPLE TIME: 1235 SITE FIELD CONDITIONS/WEATHER Rain 70°

Well Condition Inspection (circle one) Equipment Cleaning Procedures
 cover: locked not locked
 number: legible not legible
 outer casing: good fair poor
 inner casing: good fair poor
 well photographed: yes no
 - potable water and phosphate-free soap
 - potable water rinse
 - water rinse: distilled delonized
 - solvent rinse: acetone hexane
 - air dry

Casing Diameter: (circle one) 2" 4" 6" Other: _____
 Casing Volume Calculation: (πr²h)(7.48 gal/ft³)
 Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47
 Casing Volume (liters/ft) for: 2" = 0.618; 4" = 2.47; 6" = 5.56

Depth to Water (feet): 6.60 Measuring Point Elevation (feet): 16
 Depth of Well (feet): 18.90 Groundwater Surface Elevation: _____
 Water Column (feet): 12.3 LNAPL present: _____ thickness: _____
 Casing Volume (gallons/liters): 2.0 DNAPL present: _____ thickness: _____
 Calculated Purge Volume (gallons/liters): 6.0 Remarks: _____
 Actual Purge Volume (gallons/liters): 1.25
 Pump Intake Depth (feet): ≈ 16' Ferrous Iron (mg/L): _____

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

| TIME 2400 hrs | CUMULATIVE VOLUME (gal) | TEMPERATURE (°C) | pH | DISSOLVED OXYGEN (mg/L) | ORP (mV) | CONDUCTIVITY (µs/cm) | TURBIDITY (NTU) | Depth to Water (Feet) | ODOR/COLOR/REMARKS |
|---------------|-------------------------|------------------|------|-------------------------|----------|----------------------|-----------------|-----------------------|--------------------|
| 1130 | 0 | | | | | | | | PURGE START |
| 1136 | — | 18.03 | 6.50 | 2.34 | 47.8 | 393 | 18.20 | 6.94 | |
| 1145 | 0.4 | 18.65 | 5.85 | 0.86 | 58.0 | 361 | 11.66 | 7.44 | |
| 1155 | 0.75 | 17.74 | 5.72 | 0.45 | 55.7 | 343 | 10.37 | 7.91 | |
| 1205 | 1.0 | 17.12 | 5.71 | 0.37 | 53.3 | 343 | 8.85 | 8.34 | |
| 1215 | 1.25 | 17.19 | 5.72 | 0.32 | 50.1 | 345 | 8.95 | 8.77 | |

Measurement and Sampling Equipment
 Type Waters Q2000 Manufacturer VSI Model # 556 Calibration Date 5/12/15
Depth HP Scientific MICRO TAP 20000 5/12/15
Blackberry QED MICRO PURGE WELL WIZARD

| SAMPLE NUMBER | ANALYTICAL METHOD | BOTTLE TYPE/ PRESERVATIVES | QA REMARKS |
|---------------|-------------------|----------------------------|------------|
| 1 | DOB | 1L plastic / - | |
| 1 | COB | 125ml plastic / H2SO4 | |
| 1 | AMMONIUM | 250 ml plastic / - | |
| 1 | NITRATE | 125ml plastic / - | |
| 1 | TOC | 250ml plastic / - glass | |
| 1 | TOC/pH | 500ml plastic / - | |
| 1 | Metals Hg | 250ml plastic / HNO3 | |
| 3 | TOC | 40ml glass / phos. Acid | |

Start purge -1130
 End purge 1215
 Sample -1235



Groundwater Sampling Record

WELL No. LG-7 PROJECT # 25-2009-0303-15 LOCATION Peavoke Rapids, NC DATE 5/11/15
 SAMPLE No. PROJECT NAME EP Peavoke Rapids FIELD PERSONNEL/COMPANY E. Davis /EarthCon
 SAMPLE TIME: 1715 SITE FIELD CONDITIONS/WEATHER Sunny 79°

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: $(\pi \times 2.5^2 \times 48 \text{ gal/ft}^3)$
 Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47
 Casing Volume (liters/ft) for: 2" = 0.618; 4" = 2.47; 6" = 5.56

Depth to Water (feet): 3.85 Measuring Point Elevation (feet): 100
 Depth of Well (feet): 14.85 Groundwater Surface Elevation: _____
 Water Column (feet): 11.0 LNAPL present: _____ thickness: _____
 Casing Volume (gallons/liters): 1.8 DNAPL present: _____ thickness: _____
 Calculated Purge Volume (gallons/liters): 5.4 Remarks: _____
 Actual Purge Volume (gallons/liters): 2.1
 Pump Intake Depth (feet): ~15' Ferrous Iron (mg/L): _____

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

| TIME 2400 hrs | CUMULATIVE VOLUME (gal) | TEMPERATURE (°C) | pH | DISSOLVED OXYGEN (mg/L) | ORP (mV) | CONDUCTIVITY (µs/cm) | TURBIDITY (NTU) | Depth to Water (Feet) | ODOR/COLOR/ REMARKS |
|------------------|----------------------------|---------------------|-------------|-------------------------------|-------------|-------------------------|--------------------|--------------------------|------------------------|
| <u>1623</u> | <u>0</u> | | | | | | | | PURGE START |
| <u>1626</u> | <u>—</u> | <u>18.70</u> | <u>6.72</u> | <u>3.17</u> | <u>70.2</u> | <u>2090</u> | <u>17.08</u> | <u>6.01</u> | |
| <u>1635</u> | <u>0.2</u> | <u>17.79</u> | <u>6.63</u> | <u>0.79</u> | <u>63.3</u> | <u>2101</u> | <u>16.58</u> | <u>6.02</u> | |
| <u>1645</u> | <u>0.5</u> | <u>16.98</u> | <u>6.66</u> | <u>0.41</u> | <u>59.6</u> | <u>2134</u> | <u>10.57</u> | <u>6.01</u> | |
| <u>1655</u> | <u>0.8</u> | <u>16.78</u> | <u>6.71</u> | <u>0.30</u> | <u>57.4</u> | <u>2166</u> | <u>7.39</u> | <u>6.01</u> | |

Measurement and Sampling Equipment

| | | | |
|-------------------------------|----------------------------|--------------------------------|------------------------------------|
| Type <u>Waters Quality</u> | Manufacturer <u>VSI</u> | Model # <u>556</u> | Calibration Date <u>5/11/15</u> |
| <u>Dielectric</u> | <u>AFS Scientific</u> | <u>M-pao TAW 20000</u> | <u>5/11/15</u> |
| <u>Bladder pump</u> | <u>QED</u> | <u>Micro purge well wizard</u> | |

| SAMPLE NUMBER | ANALYTICAL METHOD | BOTTLE TYPE/ PRESERVATIVES | QA REMARKS |
|---------------|---|---|---|
| <u>1</u> | <u>BOD</u> | <u>1L plastic -</u> | |
| <u>1</u> | <u>COD</u> | <u>125ml plastic / H2SO4</u> | |
| <u>1</u> | <u>ANIONS</u> | <u>250ml plastic -</u> | |
| <u>1</u> | <u>NITRATE</u> | <u>125ml plastic -</u> | |
| <u>1</u> | <u>TOC</u> | <u>250ml glass -</u> | |
| <u>1</u> | <u>TDS/DT</u> | <u>500ml plastic -</u> | |
| <u>3</u> | <u>metals H₁</u> <u>TSC</u> | <u>250ml plastic / HNO₃</u> <u>40ml glass / Phos Acid</u> | <u>START purge -1623</u> <u>END purge -1657</u> <u>Sample 4 -1715</u> |



CHAIN-OF-CUSTODY / Analytical Request Document

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

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|----|------|------|---|---------|-------|---------|-------|------|------|------|------|------|------|------|------|------|------|
| Section A Required Client Information: Company: <u>Face Analytical</u> Contact: <u>1-800-368-5262</u> Email: <u>info@faceanalytical.com</u> Project Name: <u>1959878</u> Requested Date: <u>05/11/15</u> | | Section B Required Project Information: Report To: <u>Peter Ramsey</u> Copy To: Purchase Order No.: Project Name: <u>1959878</u> Project Number: <u>20810 583.15</u> | | Section C Invoice Information: Attention: <u>Same</u> Company Name: Address: Pace Order Reference: Pace Project Manager: Pace Profile #: Regulatory Agency: <u>NC</u> <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER | | Page: <u>1</u> of <u>1</u> 1959878 Pace Project No./ Lab I.D. | | | | | | | | | | | | | | | | | | |
| 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 Precip: P Soil/Solid: SL Other: OL Air: AR Tissue: TS Other: OT | MATRIX CODE (see yield codes to left) SAMPLE TYPE (G=GRAB C=COMP) SAMPLE TEMP AT COLLECTION # OF CONTAINERS Preservatives: H ₂ SO ₄ Unpreserved HNO ₃ HCl NaOH Na ₂ S ₂ O ₈ Methanol Other | Requested Analysis Filtered (Y/N) Y/N Analysis Test: BOD COD Alkalinity TOC Nitrate Nitrite Ammonia Residual Chlorine (Y/N) | RELINQUISHED BY / AFFILIATION DATE TIME ACCEPTED BY / AFFILIATION DATE TIME SAMPLE CONDITIONS | ADDITIONAL COMMENTS Samples are contaminated Not DW | Temp in °C Received on Sealed Cooler (Y/N) Custody (Y/N) Samples Intact (Y/N) | | | | | | | | | | | | | | | | | | |
| | | | | | | | 1 | LG-7 | DW G | G | 5/11/15 | 11:15 | 5/11/15 | 11:15 | None | |
| | | | | | | | 2 | LG-7 | DW G | G | 5/11/15 | 11:15 | 5/11/15 | 11:15 | None |
| | | | | | | | 3 | LG-7 | DW G | G | 5/11/15 | 11:15 | 5/11/15 | 11:15 | None |
| | | | | | | | 4 | LG-7 | DW G | G | 5/11/15 | 11:15 | 5/11/15 | 11:15 | None |
| | | | | | | | 5 | | | | | | | | | | | | | | | | | |
| | | | | | | | 6 | | | | | | | | | | | | | | | | | |
| | | | | | | | 7 | | | | | | | | | | | | | | | | | |
| | | | | | | | 8 | | | | | | | | | | | | | | | | | |
| | | | | | | | 9 | | | | | | | | | | | | | | | | | |
| | | | | | | | 10 | | | | | | | | | | | | | | | | | |
| | | | | | | | 11 | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | |

3

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Justin Davis
 SIGNATURE of SAMPLER: Justin Davis
 DATE Signed (MM/DD/YYYY): 05/11/15



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

June 02, 2015

Peter Ramsey
EarthCon Consultants, Inc
1880 West Oak Parkway
Building 100, Suite 106
Marietta, GA 30062

RE: Project: IP Roanoke Rapids 025.20090383
Pace Project No.: 92249550

Dear Peter Ramsey:

Enclosed are the analytical results for sample(s) received by the laboratory on May 13, 2015. 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@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



CERTIFICATIONS

Project: IP Roanoke Rapids 025.20090383
Pace Project No.: 92249550

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
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 #: 9911
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
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 #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



SAMPLE ANALYTE COUNT

Project: IP Roanoke Rapids 025.20090383
 Pace Project No.: 92249550

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|-------------|-----------|-------------|----------|-------------------|------------|
| 92249550001 | LG-7 | EPA 6020 | CRT, DRS | 11 | PASI-O |
| | | EPA 7470 | TAP | 1 | PASI-O |
| | | SM 2540C | JTJ | 1 | PASI-A |
| | | SM 4500-H+B | MLS | 1 | PASI-A |
| | | SM 5210B | TEP | 1 | PASI-A |
| | | EPA 300.0 | CMB | 3 | PASI-O |
| | | EPA 353.2 | DMN | 1 | PASI-A |
| | | SM 5220D | MAB | 1 | PASI-A |
| | | SM 5310B | AES2 | 1 | PASI-A |
| | | 92249550002 | Dup-1 | EPA 6020 | CRT, DRS |
| EPA 7470 | TAP | | | 1 | PASI-O |
| SM 2540C | JTJ | | | 1 | PASI-A |
| SM 4500-H+B | MLS | | | 1 | PASI-A |
| SM 5210B | TEP | | | 1 | PASI-A |
| EPA 300.0 | CMB | | | 3 | PASI-O |
| EPA 353.2 | DMN | | | 1 | PASI-A |
| SM 5220D | MAB | | | 1 | PASI-A |
| SM 5310B | AES2 | | | 1 | PASI-A |
| 92249550003 | LG-1 | | | EPA 6020 | CRT, DRS |
| | | EPA 7470 | TAP | 1 | PASI-O |
| | | SM 2540C | WRC | 1 | PASI-A |
| | | SM 4500-H+B | MLS | 1 | PASI-A |
| | | SM 5210B | TEP | 1 | PASI-A |
| | | EPA 300.0 | CMB | 3 | PASI-O |
| | | EPA 353.2 | DMN | 1 | PASI-A |
| | | SM 5220D | MAB | 1 | PASI-A |
| | | SM 5310B | AES2 | 1 | PASI-A |
| | | 92249550004 | EB-1 | EPA 6020 | CRT, DRS |
| EPA 7470 | TAP | | | 1 | PASI-O |
| SM 2540C | JTJ | | | 1 | PASI-A |
| SM 4500-H+B | MLS | | | 1 | PASI-A |
| SM 5210B | TEP | | | 1 | PASI-A |
| EPA 300.0 | CMB | | | 3 | PASI-O |
| EPA 353.2 | DMN | | | 1 | PASI-A |
| SM 5220D | MAB | | | 1 | PASI-A |
| SM 5310B | AES2 | | | 1 | PASI-A |

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



ANALYTICAL RESULTS

Project: IP Roanoke Rapids 025.20090383
 Pace Project No.: 92249550

Sample: Dup-1 Lab ID: 92249550002 Collected: 05/11/15 00:00 Received: 05/13/15 10:30 Matrix: Water

| Parameters | Results | Units | Report | | | Prepared | Analyzed | CAS No. | Qual |
|--|---------|------------|--------|-------|----|----------------|----------------|------------|--------|
| | | | Limit | MDL | DF | | | | |
| 6020 MET ICPMS | | | | | | | | | |
| Analytical Method: EPA 6020 Preparation Method: EPA 3010 | | | | | | | | | |
| Arsenic | ND | ug/L | 1.0 | 0.50 | 1 | 05/19/15 15:20 | 05/20/15 10:14 | 7440-38-2 | |
| Barium | 99.4 | ug/L | 1.0 | 0.50 | 1 | 05/19/15 15:20 | 05/21/15 17:05 | 7440-39-3 | |
| Cadmium | 0.068J | ug/L | 0.10 | 0.050 | 1 | 05/19/15 15:20 | 05/20/15 10:14 | 7440-43-9 | |
| Chromium | 1.5 | ug/L | 1.0 | 0.50 | 1 | 05/19/15 15:20 | 05/20/15 10:14 | 7440-47-3 | |
| Copper | 2.6 | ug/L | 1.0 | 0.93 | 1 | 05/19/15 15:20 | 05/20/15 10:14 | 7440-50-8 | |
| Iron | 3740 | ug/L | 10.0 | 6.9 | 1 | 05/19/15 15:20 | 05/21/15 17:05 | 7439-89-6 | |
| Lead | 2.2 | ug/L | 1.0 | 0.50 | 1 | 05/19/15 15:20 | 05/20/15 10:14 | 7439-92-1 | |
| Manganese | 614 | ug/L | 2.0 | 1.4 | 2 | 05/19/15 15:20 | 05/26/15 08:45 | 7439-96-5 | D4 |
| Selenium | 0.59J | ug/L | 1.0 | 0.50 | 1 | 05/19/15 15:20 | 05/21/15 17:05 | 7782-49-2 | |
| Silver | ND | ug/L | 0.10 | 0.050 | 1 | 05/19/15 15:20 | 05/20/15 10:14 | 7440-22-4 | |
| Zinc | 3.7J | ug/L | 5.0 | 2.5 | 1 | 05/19/15 15:20 | 05/20/15 10:14 | 7440-66-6 | |
| 7470 Mercury | | | | | | | | | |
| Analytical Method: EPA 7470 Preparation Method: EPA 7470 | | | | | | | | | |
| Mercury | ND | ug/L | 5.3 | 2.7 | 1 | 05/24/15 11:30 | 05/26/15 17:36 | 7439-97-6 | |
| 2540C Total Dissolved Solids | | | | | | | | | |
| Analytical Method: SM 2540C | | | | | | | | | |
| Total Dissolved Solids | 179 | mg/L | 25.0 | 25.0 | 1 | | 05/15/15 11:28 | | |
| 4500H+ pH, Electrometric | | | | | | | | | |
| Analytical Method: SM 4500-H+B | | | | | | | | | |
| pH at 25 Degrees C | 6.0 | Std. Units | 1.0 | 0.10 | 1 | | 05/14/15 15:20 | | H6 |
| 5210B BOD, 5 day | | | | | | | | | |
| Analytical Method: SM 5210B | | | | | | | | | |
| BOD, 5 day | ND | mg/L | 2.0 | 2.0 | 1 | 05/13/15 14:19 | 05/18/15 11:05 | | B2, H3 |
| 300.0 IC Anions 28 Days | | | | | | | | | |
| Analytical Method: EPA 300.0 | | | | | | | | | |
| Chloride | 3.4J | mg/L | 5.0 | 2.5 | 1 | | 05/18/15 10:14 | 16887-00-6 | |
| Fluoride | 0.11 | mg/L | 0.050 | 0.034 | 1 | | 05/18/15 10:14 | 16984-48-8 | |
| Sulfate | 12.7 | mg/L | 5.0 | 2.5 | 1 | | 05/18/15 10:14 | 14808-79-8 | |
| 353.2 Nitrogen, NO2/NO3 unpres | | | | | | | | | |
| Analytical Method: EPA 353.2 | | | | | | | | | |
| Nitrogen, Nitrate | ND | mg/L | 0.020 | 0.010 | 1 | | 05/13/15 12:37 | | H3 |
| 5220D COD | | | | | | | | | |
| Analytical Method: SM 5220D | | | | | | | | | |
| Chemical Oxygen Demand | 20.0J | mg/L | 25.0 | 12.5 | 1 | | 05/20/15 10:15 | | |
| 5310B TOC | | | | | | | | | |
| Analytical Method: SM 5310B | | | | | | | | | |
| Total Organic Carbon | 7.3 | mg/L | 1.0 | 0.50 | 1 | | 05/15/15 08:16 | 7440-44-0 | |

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



ANALYTICAL RESULTS

Project: IP Roanoke Rapids 025.20090383
 Pace Project No.: 92249550

Sample: EB-1 Lab ID: 92249550004 Collected: 05/11/15 20:35 Received: 05/13/15 10:30 Matrix: Water

| Parameters | Results | Units | Report | | | Prepared | Analyzed | CAS No. | Qual |
|--|---------|------------|--------|-------|----|----------------|----------------|------------|------|
| | | | Limit | MDL | DF | | | | |
| 6020 MET ICPMS | | | | | | | | | |
| Analytical Method: EPA 6020 Preparation Method: EPA 3010 | | | | | | | | | |
| Arsenic | ND | ug/L | 1.0 | 0.50 | 1 | 05/19/15 15:20 | 05/20/15 10:19 | 7440-38-2 | |
| Barium | ND | ug/L | 1.0 | 0.50 | 1 | 05/19/15 15:20 | 05/21/15 17:12 | 7440-39-3 | |
| Cadmium | 0.14 | ug/L | 0.10 | 0.050 | 1 | 05/19/15 15:20 | 05/20/15 10:19 | 7440-43-9 | |
| Chromium | ND | ug/L | 1.0 | 0.50 | 1 | 05/19/15 15:20 | 05/20/15 10:19 | 7440-47-3 | |
| Copper | ND | ug/L | 1.0 | 0.93 | 1 | 05/19/15 15:20 | 05/20/15 10:19 | 7440-50-8 | |
| Iron | 10.1 | ug/L | 10.0 | 6.9 | 1 | 05/19/15 15:20 | 05/21/15 17:12 | 7439-89-6 | |
| Lead | ND | ug/L | 1.0 | 0.50 | 1 | 05/19/15 15:20 | 05/20/15 10:19 | 7439-92-1 | |
| Manganese | 0.90J | ug/L | 1.0 | 0.69 | 1 | 05/19/15 15:20 | 05/20/15 10:19 | 7439-96-5 | |
| Selenium | ND | ug/L | 1.0 | 0.50 | 1 | 05/19/15 15:20 | 05/21/15 17:12 | 7782-49-2 | |
| Silver | ND | ug/L | 0.10 | 0.050 | 1 | 05/19/15 15:20 | 05/20/15 10:19 | 7440-22-4 | |
| Zinc | ND | ug/L | 5.0 | 2.5 | 1 | 05/19/15 15:20 | 05/20/15 10:19 | 7440-66-6 | |
| 7470 Mercury | | | | | | | | | |
| Analytical Method: EPA 7470 Preparation Method: EPA 7470 | | | | | | | | | |
| Mercury | ND | ug/L | 0.40 | 0.20 | 1 | 05/24/15 11:30 | 05/26/15 17:40 | 7439-97-6 | |
| 2540C Total Dissolved Solids | | | | | | | | | |
| Analytical Method: SM 2540C | | | | | | | | | |
| Total Dissolved Solids | ND | mg/L | 25.0 | 25.0 | 1 | | 05/15/15 11:29 | | |
| 4500H+ pH, Electrometric | | | | | | | | | |
| Analytical Method: SM 4500-H+B | | | | | | | | | |
| pH at 25 Degrees C | 5.3 | Std. Units | 1.0 | 0.10 | 1 | | 05/14/15 15:20 | | H6 |
| 5210B BOD, 5 day | | | | | | | | | |
| Analytical Method: SM 5210B | | | | | | | | | |
| BOD, 5 day | ND | mg/L | 2.0 | 2.0 | 1 | 05/13/15 14:19 | 05/18/15 11:05 | | |
| 300.0 IC Anions 28 Days | | | | | | | | | |
| Analytical Method: EPA 300.0 | | | | | | | | | |
| Chloride | ND | mg/L | 5.0 | 2.5 | 1 | | 05/18/15 10:57 | 16887-00-6 | |
| Fluoride | ND | mg/L | 0.050 | 0.034 | 1 | | 05/18/15 10:57 | 16984-48-8 | |
| Sulfate | ND | mg/L | 5.0 | 2.5 | 1 | | 05/18/15 10:57 | 14808-79-8 | |
| 353.2 Nitrogen, NO2/NO3 unpres | | | | | | | | | |
| Analytical Method: EPA 353.2 | | | | | | | | | |
| Nitrogen, Nitrate | ND | mg/L | 0.020 | 0.010 | 1 | | 05/13/15 12:36 | | |
| 5220D COD | | | | | | | | | |
| Analytical Method: SM 5220D | | | | | | | | | |
| Chemical Oxygen Demand | ND | mg/L | 25.0 | 12.5 | 1 | | 05/20/15 16:35 | | |
| 5310B TOC | | | | | | | | | |
| Analytical Method: SM 5310B | | | | | | | | | |
| Total Organic Carbon | ND | mg/L | 1.0 | 0.50 | 1 | | 05/15/15 08:39 | 7440-44-0 | |

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: IP Roanoke Rapids 025.20090383
Pace Project No.: 92249550

QC Batch: MPRP/24210 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 92249550001

METHOD BLANK: 1217179 Matrix: Water
Associated Lab Samples: 92249550001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Arsenic | ug/L | ND | 1.0 | 05/20/15 12:35 | |
| Barium | ug/L | ND | 1.0 | 05/21/15 17:39 | |
| Cadmium | ug/L | ND | 0.10 | 05/20/15 12:35 | |
| Chromium | ug/L | ND | 1.0 | 05/20/15 12:35 | |
| Copper | ug/L | ND | 1.0 | 05/20/15 12:35 | |
| Iron | ug/L | ND | 10.0 | 05/21/15 17:39 | |
| Lead | ug/L | ND | 1.0 | 05/20/15 12:35 | |
| Manganese | ug/L | ND | 1.0 | 05/21/15 17:39 | |
| Selenium | ug/L | ND | 1.0 | 05/20/15 12:35 | |
| Silver | ug/L | ND | 0.10 | 05/20/15 12:35 | |
| Zinc | ug/L | ND | 5.0 | 05/20/15 12:35 | |

LABORATORY CONTROL SAMPLE: 1217180

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|-------------|------------|-----------|--------------|------------|
| Arsenic | ug/L | 50 | 50.6 | 101 | 80-120 | |
| Barium | ug/L | 50 | 50.1 | 100 | 80-120 | |
| Cadmium | ug/L | 5 | 5.1 | 101 | 80-120 | |
| Chromium | ug/L | 50 | 51.2 | 102 | 80-120 | |
| Copper | ug/L | 50 | 51.3 | 103 | 80-120 | |
| Iron | ug/L | 500 | 505 | 101 | 80-120 | |
| Lead | ug/L | 50 | 50.2 | 100 | 80-120 | |
| Manganese | ug/L | 50 | 51.8 | 104 | 80-120 | |
| Selenium | ug/L | 50 | 51.9 | 104 | 80-120 | |
| Silver | ug/L | 5 | 5.3 | 106 | 80-120 | |
| Zinc | ug/L | 250 | 253 | 101 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1217181 1217182

| Parameter | Units | MS | | MSD | | MS % Rec | MSD % Rec | % Rec Limits | Max RPD | RPD | Qual |
|-----------|-------|--------------------|-------------|-------------|-----------|----------|-----------|--------------|---------|-----|------|
| | | 92249203018 Result | Spike Conc. | Spike Conc. | MS Result | | | | | | |
| Arsenic | ug/L | ND | 50 | 50 | 48.0 | 48.4 | 96 | 97 | 75-125 | 1 | 20 |
| Barium | ug/L | 102 | 50 | 50 | 155 | 154 | 105 | 104 | 75-125 | 0 | 20 |
| Cadmium | ug/L | 0.22 | 5 | 5 | 5.3 | 5.4 | 101 | 103 | 75-125 | 2 | 20 |
| Chromium | ug/L | 1.7 | 50 | 50 | 51.6 | 52.3 | 100 | 101 | 75-125 | 2 | 20 |
| Copper | ug/L | 2.7 | 50 | 50 | 52.3 | 53.1 | 99 | 101 | 75-125 | 1 | 20 |
| Iron | ug/L | 75.5 | 500 | 500 | 593 | 580 | 103 | 101 | 75-125 | 2 | 20 |
| Lead | ug/L | ND | 50 | 50 | 50.0 | 50.6 | 100 | 101 | 75-125 | 1 | 20 |

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

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: IP Roanoke Rapids 025.20090383
 Pace Project No.: 92249550

QC Batch: MPRP/24227 Analysis Method: EPA 6020
 QC Batch Method: EPA 3010 Analysis Description: 6020 MET
 Associated Lab Samples: 92249550002, 92249550003, 92249550004

METHOD BLANK: 1217822 Matrix: Water
 Associated Lab Samples: 92249550002, 92249550003, 92249550004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Arsenic | ug/L | ND | 1.0 | 05/20/15 09:36 | |
| Barium | ug/L | ND | 1.0 | 05/21/15 16:52 | |
| Cadmium | ug/L | ND | 0.10 | 05/20/15 09:36 | |
| Chromium | ug/L | ND | 1.0 | 05/20/15 09:36 | |
| Copper | ug/L | ND | 1.0 | 05/20/15 09:36 | |
| Iron | ug/L | ND | 10.0 | 05/21/15 16:52 | |
| Lead | ug/L | ND | 1.0 | 05/20/15 09:36 | |
| Manganese | ug/L | ND | 1.0 | 05/21/15 16:52 | |
| Selenium | ug/L | ND | 1.0 | 05/21/15 16:52 | |
| Silver | ug/L | ND | 0.10 | 05/20/15 09:36 | |
| Zinc | ug/L | ND | 5.0 | 05/20/15 09:36 | |

LABORATORY CONTROL SAMPLE: 1217823

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|-------------|------------|-----------|--------------|------------|
| Arsenic | ug/L | 50 | 50.1 | 100 | 80-120 | |
| Barium | ug/L | 50 | 49.7 | 99 | 80-120 | |
| Cadmium | ug/L | 5 | 4.9 | 99 | 80-120 | |
| Chromium | ug/L | 50 | 49.1 | 98 | 80-120 | |
| Copper | ug/L | 50 | 49.9 | 100 | 80-120 | |
| Iron | ug/L | 500 | 505 | 101 | 80-120 | |
| Lead | ug/L | 50 | 48.4 | 97 | 80-120 | |
| Manganese | ug/L | 50 | 51.5 | 103 | 80-120 | |
| Selenium | ug/L | 50 | 48.9 | 98 | 80-120 | |
| Silver | ug/L | 5 | 5.0 | 101 | 80-120 | |
| Zinc | ug/L | 250 | 245 | 98 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1217824 1217825

| Parameter | Units | MS | | MSD | | MS % Rec | MSD % Rec | % Rec Limits | Max RPD | RPD | Qual |
|-----------|-------|--------------------|-------------|-------------|-----------|----------|-----------|--------------|---------|-----|-------|
| | | 92249711028 Result | Spike Conc. | Spike Conc. | MS Result | | | | | | |
| Arsenic | ug/L | ND | 50 | 50 | 50.3 | 49.1 | 100 | 98 | 75-125 | 2 | 20 |
| Barium | ug/L | 72.7 | 50 | 50 | 126 | 130 | 107 | 114 | 75-125 | 3 | 20 |
| Cadmium | ug/L | ND | 5 | 5 | 5.1 | 5.0 | 102 | 100 | 75-125 | 2 | 20 |
| Chromium | ug/L | ND | 50 | 50 | 52.4 | 51.1 | 104 | 101 | 75-125 | 3 | 20 |
| Copper | ug/L | ND | 50 | 50 | 49.4 | 48.6 | 98 | 97 | 75-125 | 1 | 20 |
| Iron | ug/L | 1430 | 500 | 500 | 2270 | 2400 | 168 | 193 | 75-125 | 5 | 20 M1 |
| Lead | ug/L | ND | 50 | 50 | 53.8 | 52.4 | 107 | 104 | 75-125 | 2 | 20 |

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

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: IP Roanoke Rapids 025.20090383
 Pace Project No.: 92249550

QC Batch: WET/37490 Analysis Method: SM 2540C
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
 Associated Lab Samples: 92249550001, 92249550002, 92249550004

METHOD BLANK: 1460363 Matrix: Water
 Associated Lab Samples: 92249550001, 92249550002, 92249550004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|------------------------|-------|--------------|-----------------|----------------|------------|
| Total Dissolved Solids | mg/L | ND | 25.0 | 05/15/15 11:24 | |

LABORATORY CONTROL SAMPLE: 1460364

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|------------------------|-------|-------------|------------|-----------|--------------|------------|
| Total Dissolved Solids | mg/L | 250 | 262 | 105 | 90-110 | |

SAMPLE DUPLICATE: 1460365

| Parameter | Units | 92249264001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L | 144 | 139 | 4 | 5 | |

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

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: IP Roanoke Rapids 025.20090383
 Pace Project No.: 92249550

QC Batch: WET/37451 Analysis Method: SM 4500-H+B
 QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
 Associated Lab Samples: 92249550001, 92249550002, 92249550003, 92249550004

SAMPLE DUPLICATE: 1458680

| Parameter | Units | 92249550002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 6.0 | 6.1 | 1 | 10 | H6 |

SAMPLE DUPLICATE: 1458681

| Parameter | Units | 92249576004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 7.0 | 7.0 | 0 | 10 | H6 |

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

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: IP Roanoke Rapids 025.20090383
 Pace Project No.: 92249550

QC Batch: WETA/46494 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 92249550001, 92249550002, 92249550003, 92249550004

METHOD BLANK: 1216456 Matrix: Water
 Associated Lab Samples:

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Chloride | mg/L | ND | 5.0 | 05/18/15 08:27 | |
| Fluoride | mg/L | ND | 0.050 | 05/18/15 08:27 | |
| Sulfate | mg/L | ND | 5.0 | 05/18/15 08:27 | |

LABORATORY CONTROL SAMPLE: 1216457

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|-------------|------------|-----------|--------------|------------|
| Chloride | mg/L | 50 | 46.6 | 93 | 90-110 | |
| Fluoride | mg/L | 5 | 4.9 | 97 | 90-110 | |
| Sulfate | mg/L | 50 | 46.6 | 93 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1216458 1216459

| Parameter | Units | 92249601001 Result | MS | | MSD | | MS % Rec | MSD % Rec | % Rec Limits | Max RPD | Max RPD | Qual |
|-----------|-------|--------------------|-------------|-----------|------------|-----------|----------|-----------|--------------|---------|---------|------|
| | | | Spike Conc. | MS Result | MSD Result | MSD Conc. | | | | | | |
| Chloride | mg/L | 5.0 | 50 | 49.9 | 49.7 | 90 | 89 | 90-110 | 0 | 20 | M1 | |
| Fluoride | mg/L | | 5 | 4.7 | 4.7 | 93 | 93 | 90-110 | 0 | 20 | | |
| Sulfate | mg/L | ND | 50 | 47.8 | 47.4 | 88 | 87 | 90-110 | 1 | 20 | M1 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1216460 1216461

| Parameter | Units | 92250151001 Result | MS | | MSD | | MS % Rec | MSD % Rec | % Rec Limits | Max RPD | Max RPD | Qual |
|-----------|-------|--------------------|-------------|-----------|------------|-----------|----------|-----------|--------------|---------|---------|------|
| | | | Spike Conc. | MS Result | MSD Result | MSD Conc. | | | | | | |
| Chloride | mg/L | 22.5 | 50 | 72.3 | 72.4 | 100 | 100 | 90-110 | 0 | 20 | | |
| Fluoride | mg/L | 0.69 | 5 | 5.4 | 5.4 | 94 | 94 | 90-110 | 0 | 20 | | |
| Sulfate | mg/L | 10.4 | 50 | 55.8 | 56.1 | 91 | 91 | 90-110 | 0 | 20 | | |

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

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: IP Roanoke Rapids 025.20090383
Pace Project No.: 92249550

QC Batch: WETA/22974 Analysis Method: SM 5220D
QC Batch Method: SM 5220D Analysis Description: 5220D COD
Associated Lab Samples: 92249550001, 92249550002, 92249550003

METHOD BLANK: 1462141 Matrix: Water
Associated Lab Samples: 92249550001, 92249550002, 92249550003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|------------------------|-------|--------------|-----------------|----------------|------------|
| Chemical Oxygen Demand | mg/L | ND | 25.0 | 05/20/15 10:15 | |

LABORATORY CONTROL SAMPLE: 1462142

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|------------------------|-------|-------------|------------|-----------|--------------|------------|
| Chemical Oxygen Demand | mg/L | 750 | 791 | 105 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1462143 1462144

| Parameter | Units | MS | | MSD | | MS % Rec | MSD % Rec | % Rec Limits | Max | | | |
|------------------------|-------|--------------------|-------------|-------------|--------|----------|-----------|--------------|--------|-----|-----|------|
| | | 92249839001 Result | Spike Conc. | Spike Conc. | Result | | | | Result | RPD | RPD | Qual |
| Chemical Oxygen Demand | mg/L | 780 | 1500 | 1500 | 1690 | 1690 | 61 | 61 | 90-110 | 0 | 3 | M1 |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1462145 1462146

| Parameter | Units | MS | | MSD | | MS % Rec | MSD % Rec | % Rec Limits | Max | | | |
|------------------------|-------|--------------------|-------------|-------------|--------|----------|-----------|--------------|--------|-----|-----|------|
| | | 92250177004 Result | Spike Conc. | Spike Conc. | Result | | | | Result | RPD | RPD | Qual |
| Chemical Oxygen Demand | mg/L | 132000 | 750 | 750 | 289000 | 289000 | 20880 | 20880 | 90-110 | 0 | 3 | M6 |

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

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: IP Roanoke Rapids 025.20090383
Pace Project No.: 92249550

QC Batch: WETA/22931 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B TOC
Associated Lab Samples: 92249550001, 92249550002, 92249550003, 92249550004

METHOD BLANK: 1459947 Matrix: Water
Associated Lab Samples: 92249550001, 92249550002, 92249550003, 92249550004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|----------------------|-------|--------------|-----------------|----------------|------------|
| Total Organic Carbon | mg/L | ND | 1.0 | 05/15/15 05:38 | |

LABORATORY CONTROL SAMPLE: 1459948

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|----------------------|-------|-------------|------------|-----------|--------------|------------|
| Total Organic Carbon | mg/L | 25 | 24.3 | 97 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1459949 1459950

| Parameter | Units | MS | | MSD | | MS % Rec | MSD % Rec | % Rec Limits | Max RPD | Qual |
|----------------------|-------|-------------|--------|-------------|--------|----------|-----------|--------------|---------|------|
| | | Spike Conc. | Result | Spike Conc. | Result | | | | | |
| Total Organic Carbon | mg/L | 15.1 | 25 | 25 | 40.6 | 40.2 | 102 | 100 | 90-110 | 1 5 |

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

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: IP Roanoke Rapids 025.20090383
 Pace Project No.: 92249550

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|-------------|-----------|-----------------|------------|-------------------|------------------|
| 92249550001 | LG-7 | EPA 3010 | MPRP/24210 | EPA 6020 | ICPM/9816 |
| 92249550002 | Dup-1 | EPA 3010 | MPRP/24227 | EPA 6020 | ICPM/9820 |
| 92249550003 | LG-1 | EPA 3010 | MPRP/24227 | EPA 6020 | ICPM/9820 |
| 92249550004 | EB-1 | EPA 3010 | MPRP/24227 | EPA 6020 | ICPM/9820 |
| 92249550001 | LG-7 | EPA 7470 | MERP/5763 | EPA 7470 | MERC/5747 |
| 92249550002 | Dup-1 | EPA 7470 | MERP/5763 | EPA 7470 | MERC/5747 |
| 92249550003 | LG-1 | EPA 7470 | MERP/5763 | EPA 7470 | MERC/5747 |
| 92249550004 | EB-1 | EPA 7470 | MERP/5763 | EPA 7470 | MERC/5747 |
| 92249550001 | LG-7 | SM 2540C | WET/37490 | | |
| 92249550002 | Dup-1 | SM 2540C | WET/37490 | | |
| 92249550003 | LG-1 | SM 2540C | WET/37518 | | |
| 92249550004 | EB-1 | SM 2540C | WET/37490 | | |
| 92249550001 | LG-7 | SM 4500-H+B | WET/37451 | | |
| 92249550002 | Dup-1 | SM 4500-H+B | WET/37451 | | |
| 92249550003 | LG-1 | SM 4500-H+B | WET/37451 | | |
| 92249550004 | EB-1 | SM 4500-H+B | WET/37451 | | |
| 92249550001 | LG-7 | SM 5210B | WET/37425 | SM 5210B | WET/37433 |
| 92249550002 | Dup-1 | SM 5210B | WET/37425 | SM 5210B | WET/37433 |
| 92249550003 | LG-1 | SM 5210B | WET/37425 | SM 5210B | WET/37433 |
| 92249550004 | EB-1 | SM 5210B | WET/37425 | SM 5210B | WET/37433 |
| 92249550001 | LG-7 | EPA 300.0 | WETA/46494 | | |
| 92249550002 | Dup-1 | EPA 300.0 | WETA/46494 | | |
| 92249550003 | LG-1 | EPA 300.0 | WETA/46494 | | |
| 92249550004 | EB-1 | EPA 300.0 | WETA/46494 | | |
| 92249550001 | LG-7 | EPA 353.2 | WETA/22906 | | |
| 92249550002 | Dup-1 | EPA 353.2 | WETA/22906 | | |
| 92249550003 | LG-1 | EPA 353.2 | WETA/22906 | | |
| 92249550004 | EB-1 | EPA 353.2 | WETA/22906 | | |
| 92249550001 | LG-7 | SM 5220D | WETA/22974 | | |
| 92249550002 | Dup-1 | SM 5220D | WETA/22974 | | |
| 92249550003 | LG-1 | SM 5220D | WETA/22974 | | |
| 92249550004 | EB-1 | SM 5220D | WETA/22977 | | |
| 92249550001 | LG-7 | SM 5310B | WETA/22931 | | |
| 92249550002 | Dup-1 | SM 5310B | WETA/22931 | | |
| 92249550003 | LG-1 | SM 5310B | WETA/22931 | | |
| 92249550004 | EB-1 | SM 5310B | WETA/22931 | | |

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A
Required Client Information:

Section B
Required Project Information:

Section C
Invoice Information:

Page: 1 of 1

Company Name: **Face Analytical, Inc.**
Address: **1959878**

Attention: **Shawne**

REGULATORY AGENCY: **1959878**

Report To: **Patricia Ramsey**
Copy To:

Company Name:

REGULATORY AGENCY: **NC**

Project Name: **IRP/Remedial Action**

Address:

REGULATORY AGENCY: **NC**

Project Number: **2008-030315**

Phone Profile #:

REGULATORY AGENCY: **NC**

Requested Due Date/TAT: **Standard**

Preservatives:

REGULATORY AGENCY: **NC**

Matrix Codes: **DW, WT, VW, P, SL, OL, WP, AR, TS, OT**

Preservatives:

REGULATORY AGENCY: **NC**

Matrix Code: **(see valid codes to left)**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **(A-Z, 0-9, /, -)**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **LG-7**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **LG-1**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **ED-1**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **LG-7**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **LG-1**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **ED-1**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **LG-7**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **LG-1**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **ED-1**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **LG-7**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **LG-1**

Preservatives:

REGULATORY AGENCY: **NC**

Sample ID: **ED-1**

Preservatives:

REGULATORY AGENCY: **NC**

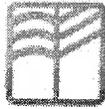
Important Note: By signing this form you are accepting Face's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

ORIGINAL

SAMPLER NAME AND SIGNATURE: **Robert Davis**
PRINT Name of SAMPLER: **Robert Davis**
SIGNATURE of SAMPLER: **Robert Davis**
DATE Signed (MANDATORY): **05/11/15**

Temp in °C: **14**
Received on Ice (Y/N): **Y**
Custody Sealed Cooler (Y/N): **Y**
Samples Intact (Y/N): **Y**

FALL-03-020rev.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>

Case Narrative

WO#: 15051587
Date: 6/2/2015

CLIENT: Pace Analytical Services Inc
Project: 92249550

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 are 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.

Analysis performed by DBM, VRM, or SFG were performed at Summit Labs 2704 Eatonton Highway Haddock, GA 31033

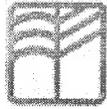
All results for Solid Samples are reported on an "as received" or "wet weight" basis unless indicated as "dry weight" using the "-dry" designation on the reporting units.

Summit Environmental Technologies, Inc., holds the accreditations/certifications listed at the bottom of the cover letter that may or may not pertain to this report.

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

This report is believed to meet all of the requirements of NELAC or the accrediting / certifying agency. Any comments or problems with the analytical events associated with this report are noted below.

Original
Page 2 of 6



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#: 15051587
02-Jun-15

CLIENT: Pace Analytical Services Inc
Project: 92249550

| Lab SampleID | Client Sample ID | Tag No | Date Collected | Date Received | Matrix |
|--------------|------------------|--------|----------------------|-----------------------|----------------------|
| 15051587-001 | 92249550001 | | 5/11/2015 5:15:00 PM | 5/15/2015 10:15:00 AM | Non-Potable Water |
| 15051587-002 | 92249550002 | | 5/11/2015 | 5/15/2015 10:15:00 AM | Non-Potable Water |
| 15051587-003 | 92249550003 | | 5/11/2015 7:40:00 PM | 5/15/2015 10:15:00 AM | Non-Potable Water |
| 15051587-004 | 92249550004 | | 5/11/2015 8:35:00 PM | 5/15/2015 10:15:00 AM | Non-Potable Water |



SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

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

QC SUMMARY REPORT

WO#: 15051587
02-Jun-15

Client: Pace Analytical Services Inc
Project: 92249550

BatchID: R38138

| Sample ID | MB-R38138 | SampType | MBLK | TestCode | TOX_NPW(90 | Units | mg/L | Prep Date: | RunNo: | 38138 | | | |
|-----------------------|-----------|----------|--------|----------|------------|----------------|----------|------------|-----------|-------------|------|----------|------|
| Client ID | PBW | Batch ID | R38138 | TestNo: | SW9020 | Analysis Date: | 6/2/2015 | SeqNo: | 555115 | | | | |
| Analyte | | Result | | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Total Organic Halides | | ND | | 0.100 | | | | | | | | | U |

| Sample ID | LCS-R38138 | SampType | LCS | TestCode | TOX_NPW(90 | Units | mg/L | Prep Date: | RunNo: | 38138 | | | |
|-----------------------|------------|----------|--------|----------|------------|----------------|----------|------------|-----------|-------------|------|----------|------|
| Client ID | LCSW | Batch ID | R38138 | TestNo: | SW9020 | Analysis Date: | 6/2/2015 | SeqNo: | 555116 | | | | |
| Analyte | | Result | | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Total Organic Halides | | 32.5 | | 0.100 | 30.00 | 0 | 108 | 90 | 110 | | | | |

| | | | |
|--------------------|--|---|--|
| Qualifiers: | * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | 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 |
| | MC Value is below Minimum Compound Limit. | 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 |

Original
Page 6 of 6
Page 33 of 36

Date: 07/27/13

Summit Environmental Technologies, Inc. Cooler Receipt Form

Client: Pace Initials of person inspecting cooler and samples: SC
Order Number: 15051487
Date Received: 5/15/15 Time Received: 0955 Date cooler(s) opened and samples inspected: 5/15/15

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: 0 N N/A

Custody Seals intact Y N N/A

C-O-C in plastic 0 N N/A

Ice Blue ice present / absent / melted N/A

Sample Temperature IR Gun #16020459 CF 00 °C 3.1 °C N/A

Radiological Testing Instrument serial #35127 Y 0 N/A
(see page 2 for scan results)

****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 0 N N/A

Samples in separate bags 0 N N/A

Sample containers intact* 0 N N/A

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

Sample label(s) complete (ID, date, etc.) 0 N N/A

Label(s) agree with C-O-C 0 N N/A

Correct containers used 0 N N/A

Sufficient sample received 0 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: _____



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

June 09, 2015

Peter Ramsey
EarthCon Consultants, Inc
1880 West Oak Parkway
Building 100, Suite 106
Marietta, GA 30062

RE: Project: IP Roanoke Rapids 25.20090383
Pace Project No.: 92249328

Dear Peter Ramsey:

Enclosed are the analytical results for sample(s) received by the laboratory on May 12, 2015. 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@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



CERTIFICATIONS

Project: IP Roanoke Rapids 25.20090383
Pace Project No.: 92249328

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
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 #: 9911
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
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 #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



SAMPLE ANALYTE COUNT

Project: IP Roanoke Rapids 25.20090383
 Pace Project No.: 92249328

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|-------------|-----------|-------------|----------|-------------------|------------|
| 92249328001 | LG-6 | EPA 6020 | CRT, DRS | 11 | PASI-O |
| | | EPA 7470 | TAP | 1 | PASI-O |
| | | SM 2540C | JTJ | 1 | PASI-A |
| | | SM 4500-H+B | MLS | 1 | PASI-A |
| | | SM 5210B | MLS | 1 | PASI-A |
| | | EPA 300.0 | AIS | 3 | PASI-O |
| | | EPA 353.2 | DMN | 1 | PASI-A |
| | | SM 5220D | MAB | 1 | PASI-A |
| | | SM 5310B | AES2 | 1 | PASI-A |
| | | 92249328002 | LG-5 | EPA 6020 | CRT |
| EPA 7470 | TAP | | | 1 | PASI-O |
| SM 2540C | JTJ | | | 1 | PASI-A |
| SM 4500-H+B | MLS | | | 1 | PASI-A |
| SM 5210B | MLS | | | 1 | PASI-A |
| EPA 300.0 | CMB | | | 3 | PASI-O |
| EPA 353.2 | DMN | | | 1 | PASI-A |
| SM 5220D | MAB | | | 1 | PASI-A |
| SM 5310B | AES2 | | | 1 | PASI-A |
| 92249328003 | LG-3 | | | EPA 6020 | CRT |
| | | EPA 7470 | TAP | 1 | PASI-O |
| | | SM 2540C | JTJ | 1 | PASI-A |
| | | SM 4500-H+B | MLS | 1 | PASI-A |
| | | SM 5210B | MLS | 1 | PASI-A |
| | | EPA 300.0 | AIS, CMB | 3 | PASI-O |
| | | EPA 353.2 | DMN | 1 | PASI-A |
| | | SM 5220D | MAB | 1 | PASI-A |
| | | SM 5310B | AES2 | 1 | PASI-A |

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



ANALYTICAL RESULTS

Project: IP Roanoke Rapids 25.20090383
 Pace Project No.: 92249328

Sample: LG-5 Lab ID: 92249328002 Collected: 05/11/15 12:35 Received: 05/12/15 10:50 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 | 2.6 | ug/L | 1.0 | 0.50 | 1 | 05/16/15 16:30 | 05/19/15 15:48 | 7440-38-2 | |
| Barium | 75.4 | ug/L | 1.0 | 0.50 | 1 | 05/16/15 16:30 | 05/19/15 15:48 | 7440-39-3 | |
| Cadmium | 0.36 | ug/L | 0.10 | 0.050 | 1 | 05/16/15 16:30 | 05/19/15 15:48 | 7440-43-9 | |
| Chromium | 3.4 | ug/L | 1.0 | 0.50 | 1 | 05/16/15 16:30 | 05/19/15 15:48 | 7440-47-3 | |
| Copper | 2.3 | ug/L | 1.0 | 0.93 | 1 | 05/16/15 16:30 | 05/19/15 15:48 | 7440-50-8 | |
| Iron | 5900 | ug/L | 50.0 | 34.7 | 5 | 05/16/15 16:30 | 05/21/15 12:18 | 7439-89-6 | D4 |
| Lead | ND | ug/L | 1.0 | 0.50 | 1 | 05/16/15 16:30 | 05/19/15 15:48 | 7439-92-1 | |
| Manganese | 2250 | ug/L | 5.0 | 3.4 | 5 | 05/16/15 16:30 | 05/21/15 12:18 | 7439-96-5 | D4 |
| Selenium | 0.51J | ug/L | 1.0 | 0.50 | 1 | 05/16/15 16:30 | 05/19/15 15:48 | 7782-49-2 | |
| Silver | ND | ug/L | 0.10 | 0.050 | 1 | 05/16/15 16:30 | 05/19/15 15:48 | 7440-22-4 | |
| Zinc | 14.6 | ug/L | 5.0 | 2.5 | 1 | 05/16/15 16:30 | 05/19/15 15:48 | 7440-66-6 | |
| 7470 Mercury | | Analytical Method: EPA 7470 Preparation Method: EPA 7470 | | | | | | | |
| Mercury | ND | ug/L | 0.20 | 0.10 | 1 | 05/18/15 08:45 | 05/19/15 14:58 | 7439-97-6 | |
| 2540C Total Dissolved Solids | | Analytical Method: SM 2540C | | | | | | | |
| Total Dissolved Solids | 251 | mg/L | 25.0 | 25.0 | 1 | | 05/15/15 11:27 | | |
| 4500H+ pH, Electrometric | | Analytical Method: SM 4500-H+B | | | | | | | |
| pH at 25 Degrees C | 6.0 | Std. Units | 1.0 | 0.10 | 1 | | 05/14/15 15:20 | | H6 |
| 5210B BOD, 5 day | | Analytical Method: SM 5210B | | | | | | | |
| BOD, 5 day | ND | mg/L | 2.0 | 2.0 | 1 | 05/12/15 21:40 | 05/17/15 16:15 | | |
| 300.0 IC Anions 28 Days | | Analytical Method: EPA 300.0 | | | | | | | |
| Chloride | 2.7J | mg/L | 5.0 | 2.5 | 1 | | 05/16/15 18:24 | 16887-00-6 | |
| Fluoride | 0.10 | mg/L | 0.050 | 0.034 | 1 | | 05/16/15 18:24 | 16984-48-8 | |
| Sulfate | 28.7 | mg/L | 5.0 | 2.5 | 1 | | 05/16/15 18:24 | 14808-79-8 | |
| 353.2 Nitrogen, NO2/NO3 unpres | | Analytical Method: EPA 353.2 | | | | | | | |
| Nitrogen, Nitrate | 0.080 | mg/L | 0.020 | 0.010 | 1 | | 05/13/15 07:18 | | |
| 5220D COD | | Analytical Method: SM 5220D | | | | | | | |
| Chemical Oxygen Demand | 30.0 | mg/L | 25.0 | 12.5 | 1 | | 05/14/15 10:45 | | |
| 5310B TOC | | Analytical Method: SM 5310B | | | | | | | |
| Total Organic Carbon | 15.1 | mg/L | 1.0 | 0.50 | 1 | | 05/15/15 06:07 | 7440-44-0 | |

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: IP Roanoke Rapids 25.20090383
 Pace Project No.: 92249328

QC Batch: MERP/5738 Analysis Method: EPA 7470
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
 Associated Lab Samples: 92249328001, 92249328002, 92249328003

METHOD BLANK: 1216424 Matrix: Water
 Associated Lab Samples: 92249328001, 92249328002, 92249328003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Mercury | ug/L | ND | 0.20 | 05/19/15 14:26 | |

LABORATORY CONTROL SAMPLE: 1216425

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|-------------|------------|-----------|--------------|------------|
| Mercury | ug/L | 2 | 2.1 | 107 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1216522 1216523

| Parameter | Units | 35186868003 Result | MS | | MSD | | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|-----------|-------|--------------------|-------------|-----------|-------------|------------|----------|-----------|--------------|-----|---------|------|
| | | | Spike Conc. | MS Result | Spike Conc. | MSD Result | | | | | | |
| Mercury | ug/L | 0.10U | 2 | 2.1 | 2 | 2.1 | 105 | 104 | 75-125 | 1 | 20 | |

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

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: IP Roanoke Rapids 25.20090383
 Pace Project No.: 92249328

| Parameter | Units | 1216140 | | 1216141 | | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | Max RPD | Qual |
|-----------|-------|-----------------------|----------------------|-----------------------|--------------|--------------|---------------|-------------|--------------|-----------------|------------|------|
| | | 35187090001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | | | | | | | |
| Manganese | ug/L | 24.0 | 50 | 50 | 73.2 | 75.0 | 98 | 102 | 75-125 | 2 | 20 | |
| Selenium | ug/L | 0.69J | 50 | 50 | 44.1 | 44.7 | 87 | 88 | 75-125 | 1 | 20 | |
| Silver | ug/L | 0.050U | 5 | 5 | 4.9 | 4.9 | 98 | 98 | 75-125 | 1 | 20 | |
| Zinc | ug/L | 115 | 250 | 250 | 364 | 371 | 99 | 102 | 75-125 | 2 | 20 | |

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

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: IP Roanoke Rapids 25.20090383
 Pace Project No.: 92249328

QC Batch: WET/37451 Analysis Method: SM 4500-H+B
 QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
 Associated Lab Samples: 92249328001, 92249328002, 92249328003

SAMPLE DUPLICATE: 1458680

| Parameter | Units | 92249550002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 6.0 | 6.1 | 1 | 10 | H6 |

SAMPLE DUPLICATE: 1458681

| Parameter | Units | 92249576004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 7.0 | 7.0 | 0 | 10 | H6 |

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

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: IP Roanoke Rapids 25.20090383
 Pace Project No.: 92249328

QC Batch: WETA/46466 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 92249328001, 92249328002, 92249328003

METHOD BLANK: 1216066 Matrix: Water
 Associated Lab Samples:

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Chloride | mg/L | ND | 5.0 | 05/16/15 11:01 | |
| Fluoride | mg/L | ND | 0.050 | 05/16/15 11:01 | |
| Sulfate | mg/L | ND | 5.0 | 05/16/15 11:01 | |

LABORATORY CONTROL SAMPLE: 1216067

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|-------------|------------|-----------|--------------|------------|
| Chloride | mg/L | 50 | 50.6 | 101 | 90-110 | |
| Fluoride | mg/L | 5 | 4.7 | 94 | 90-110 | |
| Sulfate | mg/L | 50 | 50.3 | 101 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1216068 1216069

| Parameter | Units | 92248859001 | | MSD | | MSD | | % Rec | | % Rec Limits | Max RPD | Qual |
|-----------|-------|-------------|----------------|-------------|-----------|------------|----------|-----------|--------|--------------|---------|------|
| | | Result | MS Spike Conc. | Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | | | | |
| Chloride | mg/L | 72.8 | 50 | 50 | 127 | 127 | 108 | 109 | 90-110 | 0 | 20 | E |
| Fluoride | mg/L | 0.55 | 5 | 5 | 5.0 | 5.1 | 89 | 90 | 90-110 | 1 | 20 | M1 |
| Sulfate | mg/L | 9.5 | 50 | 50 | 57.5 | 57.9 | 96 | 97 | 90-110 | 1 | 20 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1216070 1216071

| Parameter | Units | 92249272001 | | MSD | | MSD | | % Rec | | % Rec Limits | Max RPD | Qual |
|-----------|-------|-------------|----------------|-------------|-----------|------------|----------|-----------|--------|--------------|---------|------|
| | | Result | MS Spike Conc. | Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | | | | |
| Chloride | mg/L | | 50 | 50 | 51.5 | 51.9 | 94 | 95 | 90-110 | 1 | 20 | |
| Fluoride | mg/L | ND | 5 | 5 | 4.4 | 4.5 | 87 | 88 | 90-110 | 1 | 20 | M1 |
| Sulfate | mg/L | | 50 | 50 | 54.7 | 55.1 | 95 | 96 | 90-110 | 1 | 20 | |

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

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: IP Roanoke Rapids 25.20090383
Pace Project No.: 92249328

QC Batch: WETA/22904 Analysis Method: SM 5220D
QC Batch Method: SM 5220D Analysis Description: 5220D COD
Associated Lab Samples: 92249328001, 92249328002, 92249328003

METHOD BLANK: 1457391 Matrix: Water
Associated Lab Samples: 92249328001, 92249328002, 92249328003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|------------------------|-------|--------------|-----------------|----------------|------------|
| Chemical Oxygen Demand | mg/L | ND | 25.0 | 05/14/15 10:45 | |

LABORATORY CONTROL SAMPLE: 1457392

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|------------------------|-------|-------------|------------|-----------|--------------|------------|
| Chemical Oxygen Demand | mg/L | 750 | 816 | 109 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1457393 1457394

| Parameter | Units | 92249495001 | | MSD | | MS | | MSD | | % Rec Limits | RPD | Max RPD | Qual |
|------------------------|-------|-------------|-------------|-------------|--------|--------|-------|-------|--------|--------------|-----|---------|------|
| | | Result | Spike Conc. | Spike Conc. | Result | Result | % Rec | % Rec | | | | | |
| Chemical Oxygen Demand | mg/L | 2770 | 3000 | 3000 | 2820 | 2820 | 2 | 2 | 90-110 | 0 | 3 | M1 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1457395 1457396

| Parameter | Units | 92248330007 | | MSD | | MS | | MSD | | % Rec Limits | RPD | Max RPD | Qual |
|------------------------|-------|-------------|-------------|-------------|--------|--------|-------|-------|--------|--------------|-----|---------|------|
| | | Result | Spike Conc. | Spike Conc. | Result | Result | % Rec | % Rec | | | | | |
| Chemical Oxygen Demand | mg/L | 1360 | 750 | 750 | 1370 | 1370 | 1 | 1 | 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

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: IP Roanoke Rapids 25.20090383
 Pace Project No.: 92249328

QC Batch: WETA/22931 Analysis Method: SM 5310B
 QC Batch Method: SM 5310B Analysis Description: 5310B TOC
 Associated Lab Samples: 92249328002, 92249328003

METHOD BLANK: 1459947 Matrix: Water
 Associated Lab Samples: 92249328002, 92249328003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|----------------------|-------|--------------|-----------------|----------------|------------|
| Total Organic Carbon | mg/L | ND | 1.0 | 05/15/15 05:38 | |

LABORATORY CONTROL SAMPLE: 1459948

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|----------------------|-------|-------------|------------|-----------|--------------|------------|
| Total Organic Carbon | mg/L | 25 | 24.3 | 97 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1459949 1459950

| Parameter | Units | MS | | MSD | | MS | | MSD | | % Rec Limits | RPD | Max RPD | Qual |
|----------------------|-------|--------------------|-------------|-------------|--------|--------|-------|-------|--------|--------------|-----|---------|------|
| | | 92249328002 Result | Spike Conc. | Spike Conc. | Result | Result | % Rec | % Rec | | | | | |
| Total Organic Carbon | mg/L | 15.1 | 25 | 25 | 40.6 | 40.2 | 102 | 100 | 90-110 | 1 | 5 | | |

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

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



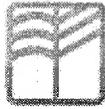
QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: IP Roanoke Rapids 25.20090383
 Pace Project No.: 92249328

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|-------------|-----------|-----------------|------------|-------------------|------------------|
| 92249328001 | LG-6 | EPA 3010 | MPRP/24176 | EPA 6020 | ICPM/9800 |
| 92249328002 | LG-5 | EPA 3010 | MPRP/24176 | EPA 6020 | ICPM/9800 |
| 92249328003 | LG-3 | EPA 3010 | MPRP/24176 | EPA 6020 | ICPM/9800 |
| 92249328001 | LG-6 | EPA 7470 | MERP/5738 | EPA 7470 | MERC/5723 |
| 92249328002 | LG-5 | EPA 7470 | MERP/5738 | EPA 7470 | MERC/5723 |
| 92249328003 | LG-3 | EPA 7470 | MERP/5738 | EPA 7470 | MERC/5723 |
| 92249328001 | LG-6 | SM 2540C | WET/37490 | | |
| 92249328002 | LG-5 | SM 2540C | WET/37490 | | |
| 92249328003 | LG-3 | SM 2540C | WET/37490 | | |
| 92249328001 | LG-6 | SM 4500-H+B | WET/37451 | | |
| 92249328002 | LG-5 | SM 4500-H+B | WET/37451 | | |
| 92249328003 | LG-3 | SM 4500-H+B | WET/37451 | | |
| 92249328001 | LG-6 | SM 5210B | WET/37407 | SM 5210B | WET/37412 |
| 92249328002 | LG-5 | SM 5210B | WET/37407 | SM 5210B | WET/37412 |
| 92249328003 | LG-3 | SM 5210B | WET/37407 | SM 5210B | WET/37412 |
| 92249328001 | LG-6 | EPA 300.0 | WETA/46466 | | |
| 92249328002 | LG-5 | EPA 300.0 | WETA/46466 | | |
| 92249328003 | LG-3 | EPA 300.0 | WETA/46466 | | |
| 92249328001 | LG-6 | EPA 353.2 | WETA/22896 | | |
| 92249328002 | LG-5 | EPA 353.2 | WETA/22896 | | |
| 92249328003 | LG-3 | EPA 353.2 | WETA/22896 | | |
| 92249328001 | LG-6 | SM 5220D | WETA/22904 | | |
| 92249328002 | LG-5 | SM 5220D | WETA/22904 | | |
| 92249328003 | LG-3 | SM 5220D | WETA/22904 | | |
| 92249328001 | LG-6 | SM 5310B | WETA/22930 | | |
| 92249328002 | LG-5 | SM 5310B | WETA/22931 | | |
| 92249328003 | LG-3 | SM 5310B | WETA/22931 | | |

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

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

Case Narrative

WO#: 15051282
Date: 5/28/2015

CLIENT: Pace Analytical Services Inc
Project: 92249328

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 are 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.

Analysis performed by DBM, VRM, or SFG were performed at Summit Labs 2704 Eatonton Highway Haddock, GA 31033

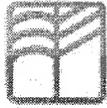
All results for Solid Samples are reported on an "as received" or "wet weight" basis unless indicated as "dry weight" using the "-dry" designation on the reporting units.

Summit Environmental Technologies, Inc., holds the accreditations/certifications listed at the bottom of the cover letter that may or may not pertain to this report.

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

This report is believed to meet all of the requirements of NELAC or the accrediting / certifying agency. Any comments or problems with the analytical events associated with this report are noted below.

Original
Page 2 of 9



SUMMIT
 ENVIRONMENTAL TECHNOLOGIES, INC
 Analytical Laboratories

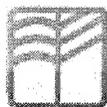
Summit Environmental Technologies, Inc.
 3310 Win St.
 Cuyahoga Falls, Ohio 44223
 TEL: (330) 253-8211 FAX: (330) 253-4489
 Website: <http://www.settek.com>

**Workorder
 Sample Summary**

WO#: 15051282
 28-May-15

CLIENT: Pace Analytical Services Inc
Project: 92249328

| Lab SampleID | Client Sample ID | Tag No | Date Collected | Date Received | Matrix |
|--------------|------------------|--------|-----------------------|-----------------------|-------------------|
| 15051282-001 | 92249328001 | | 5/11/2015 10:55:00 AM | 5/13/2015 10:00:00 AM | Non-Potable Water |
| 15051282-002 | 92249328002 | | 5/11/2015 12:35:00 PM | 5/13/2015 10:00:00 AM | Non-Potable Water |
| 15051282-003 | 92249328003 | | 5/11/2015 1:50:00 PM | 5/13/2015 10:00:00 AM | Non-Potable Water |



SUMMIT
 ENVIRONMENTAL TECHNOLOGIES, INC.
 Analytical Laboratories

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

Analytical Report

(base report)

WO#: **15051282**

Date Reported: **5/28/2015**

CLIENT: Pace Analytical Services Inc

Tag Number:

Matrix: NON-POTABLE WATER

Collection Date: 5/11/2015 12:35:00 PM

Lab ID: 15051282-002A

Project: 92249328

Client Sample ID 92249328002

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|--------|-------|------|-------|---------------|----------------------|
| TOTAL ORGANIC HALIDES (TOX) (9020) | | | | | SW9020 | Analyst: CJM |
| Total Organic Halides | ND | 0.100 | | mg/L | 1 | 5/21/2015 4:26:00 PM |

Qualifiers:

- | | |
|--|--|
| * Value exceeds Maximum Contaminant Level. | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | M Manual integration used to determine area response |
| MC Value is below Minimum Compound Limit. | N Tentatively identified compounds |
| 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 |
| U Samples with CalcVal < MDL | |

Original

Page 6 of 9

Page 29 of 35



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

QC SUMMARY REPORT

WO#: 15051282
 28-May-15

Client: Pace Analytical Services Inc
Project: 92249328

BatchID: R37698

| | | | | | | | | | | | | | |
|-----------------------|------------------|-----------|---------------|--------------|--------------------------------|----------------|------------------|----------|---------------|-------------|------|----------|------|
| Sample ID | MB-R37698 | SampType: | MBLK | TestCode: | TOX_NPW(90) Units: mg/L | Prep Date: | | RunNo: | 37698 | | | | |
| Client ID: | PBW | Batch ID: | R37698 | TestNo: | SW9020 | Analysis Date: | 5/21/2015 | SeqNo: | 549460 | | | | |
| Analyte | | Result | | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Total Organic Halides | | ND | | 0.100 | | | | | | | | | |

| | | | | | | | | | | | | | |
|-----------------------|-------------------|--------------|---------------|--------------|--------------------------------|----------------|------------------|-----------|---------------|-------------|------|----------|------|
| Sample ID | LCS-R37698 | SampType: | LCS | TestCode: | TOX_NPW(90) Units: mg/L | Prep Date: | | RunNo: | 37698 | | | | |
| Client ID: | LCSW | Batch ID: | R37698 | TestNo: | SW9020 | Analysis Date: | 5/21/2015 | SeqNo: | 549461 | | | | |
| Analyte | | Result | | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Total Organic Halides | | 0.184 | | 0.100 | 0.2000 | 0 | 92.0 | 90 | 110 | | | | |

| | | | |
|--------------------|--|---|--|
| Qualifiers: | * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank | 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 |
| | MC Value is below Minimum Compound Limit. | 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 |



Chain of Custody

Workorder: 92249328 Workorder Name: IP ROANOAK RAPIDS 262009038315 Results Requested 5/27/2015

Report / Invoice to: Summit Subcontract to: P.O. #116 14823 Requested Analysis: 1 SDS/282-001
003

Nicola Gasiorowski
Pace Analytical Charlotte
9800 Kinross Ave. Suite 100
Huntersville, NC 28078
Phone (704)875-8092
Email: nicola.gasiorowski@pacelabs.com

| Item | Sample ID | Collect Date/Time | Lab ID | Matrix | Preserved Containers | | LAB USE ONLY |
|------|-----------|-------------------|-------------|--------|----------------------|-----|--------------|
| | | | | | PCB | TOX | |
| 1 | 10-6 | 5/11/2015 10:55 | 92249328001 | Water | | | |
| 2 | LG-5 | 5/11/2015 12:35 | 92249328002 | Water | | | |
| 3 | LG-3 | 5/11/2015 13:50 | 92249328003 | Water | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |

| Transfers | Released By | Date/Time | Received By | Date/Time | Received on Ice | Y or N | Samples Intact | Y or N |
|-----------|--------------------------|----------------------|---------------|----------------|-----------------|--------|----------------|--------|
| 1 | <u>IP ROANOAK RAPIDS</u> | <u>5/12/15 12:00</u> | <u>Summit</u> | <u>5/15/15</u> | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |

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.



Environmental Challenges
BUSINESS SOLUTIONS®

EarthCon Consultants, Inc.
1880 West Oak Parkway
Building 100, Suite 106
Marietta, Georgia 30062

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

Memorandum

Date: June 15, 2015
To: Peter Ramsey
From: Mary Ann Brookshire
Subject: Quality Assurance Review
Project: International Paper - Roanoke Rapids, NC - Low Ground
Landfill
Sampling Date: May 11, 2015
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 (LCS), matrix spike/matrix spike duplicates (MS/MSD), and laboratory duplicates
- Field QC sample results including field duplicates
- Analytical results to verify reporting limits

2.2.2.2 Field Blanks

One equipment rinsate sample was collected. Target metals were not detected at concentrations above the method detection limits (MDLs) in the method blanks with the following exceptions.

- Cadmium, iron and manganese were detected in the equipment blank sample at concentrations of 0.14 ug/L, 10.1 ug/L, and 0.90 ug/L, respectively. Functional Guidelines prescribes three qualifications schemes for blank contamination, (1) associated sample concentrations that are non-detect are not qualified, (2) associated sample concentrations less than the reporting limit and greater than the MDL are qualified as undetected (U) at the reporting limit, and (3) associated sample concentrations greater than the reporting limit are qualified based upon professional judgment. Data are qualified as outlined in Section 5.

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 iron and manganese. Data qualification is not required as the spiked sample is a batch sample that does not reflect the sample matrix. The LCS recovery is within laboratory QC limits demonstrating the analytical system is in-control.

2.2.4 Laboratory Control Sample Analyses

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

2.2.5 Laboratory Reporting Limits

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

2.2.6 Field Duplicates

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

2.3.2.2 Field Blanks

One equipment blank sample was collected. Target constituents were not detected in the equipment blank sample with the following exception.

- TOX was detected in the equipment blank sample at a concentration of 0.02 mg/L. Functional Guidelines prescribes three qualifications schemes for blank contamination, (1) associated sample concentrations that are non-detect are not qualified, (2) associated sample concentrations less than the reporting limit and greater than the MDL are qualified as undetected (U) at the reporting limit, and (3) associated sample concentrations greater than the reporting limit are qualified based upon professional judgment. Data are qualified as outlined in Section 5.

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. The LCS results are acceptable, demonstrating the analytical system is in-control.
- The recovery value for fluoride in a batch MS sample is 89 percent, which is below the 90 to 110 percent 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 recovery values for fluoride in batch MS/MSD samples are 87 and 88 percent, which are below the 90 to 110 percent 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 recovery values for nitrate nitrogen in batch MS/MSD samples are 82 and 81 percent, which are below the 90 to 110 percent 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 recovery values for nitrate nitrogen in batch MS/MSD samples are 189 and 185 percent, which exceed the 90 to 110 percent 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 recovery values for COD in batch MS/MSD samples are both 1 percent, which is below the 90 to 110 percent 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 recovery values for COD in batch MS/MSD samples are both 2 percent, which is below the 90 to 110 percent QC limit. Data qualification is not required as the

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.