



**RESEARCH & ANALYTICAL
LABORATORIES, INC.**

Analytical/Process Consultations

January 30, 2019

Sherri Scalcione, Stormwater Division
City of Greensboro Water Resources Department
PO Box 3136
Greensboro, North Carolina 27402-3136

Reference: Request for Proposal (RFP)
Professional Laboratory Services

Dear Ms. Scalcione:

In response to the City of Greensboro's Request for Proposals (RFP), Research & Analytical Laboratories, Inc. (RAL) is pleased to provide the enclosed proposal for consideration.

RAL is a full service environmental laboratory which has been located in Kernersville, North Carolina since 1975 and has continuously served the needs of hundreds of clients for the past 41 years. RAL's present corporate organization was incorporated in 1991. Contact information for RAL is as follows:

Research & Analytical Laboratories, Inc.
106 Short Street / PO Box 473
Kernersville, North Carolina 27284

RAL is fully certified and capable of providing the scope of professional services outlined in the RFP. RAL currently holds the contract for this project and has provided our services to the City of Greensboro Stormwater Management Division since 2005. We have proven that our experience and expertise on this project will provide the City of Greensboro with an unquestionable quality product. We invite you to review the enclosed proposal and contact our references. In addition, as RAL has performed and stated in past contract agreements, we shall continue to accept the City of Greensboro Standard Terms and Conditions as provided in "Attachment A" of this RFP (City of Greensboro; Professional Services Contract). We look forward to this opportunity to re-negotiate a contract with the City of Greensboro and to provide analytical testing services in support of your Stormwater Management Program.

Sincerely,
Research & Analytical Laboratories, Inc.

Sidney L. Champion
Vice-President / Director of Laboratory Services

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SECTION I - INTRODUCTION

In response to the City of Greensboro's request for proposal (RFP) dated January 14, 2019, Research & Analytical Laboratories, Inc. (RAL) of Kernersville, North Carolina, has prepared this proposal package.

RAL is a full service environmental laboratory which is certified by the state of North Carolina to provide analytical testing for all parameters identified in the RFP. Our physical, technical and financial resources are more than adequate to provide the required services in a cost and time effective manner.

We invite the City of Greensboro to review this proposal in detail and we will be happy to meet with representatives of the City to negotiate a mutually acceptable contract to provide the required analytical services to support the City's Stormwater Management Program.

RAL has reviewed the RFP in detail and we have made every attempt to make this proposal complete and responsive. Our proposal is organized in the manner described in section 3.3 of the RFP.

RAL stands ready to provide any further information or additional detail that the City may deem necessary upon request.

SECTION II - PROJECT TEAM AND PROJECT MANAGEMENT

This project will be conducted entirely in-house by RAL personnel. No subcontractors will be necessary in order to complete the proposed contract.

Any contract negotiated as a result of this proposal will be signed by James M. Cheshire, President of RAL or Mr. Sidney L. Champion, Vice-President of RAL who have full signatory power for the corporation.

The names, addresses, and telephone numbers of the persons authorized to conduct contract negotiations for RAL are as follows:

James M. Cheshire, President
Sidney L. Champion, Vice-President, Director of Laboratory Services
Research & Analytical Laboratories, Inc.
PO Box 473 - 106 Short Street
Kernersville, North Carolina 27284
Phone: (336) 996-2841

RAL has extensive experience in providing field sampling, laboratory analysis, reporting, and consultation and training relative to storm water management for numerous clients. The experience and expertise of our staff exceeds the City's requirements as identified in

the RFP. The following is a list of our proposed team members and their roles and responsibilities relative to this project.

Project Principal

Mr. James Cheshire will serve as Project Principal. His duties include:

- 1) Signatory authority and power to commit company resources to the overall execution of the project;
- 3) Direct communication with the City of Greensboro Storm Water Management Division if problems cannot be resolved through normal channels;
- 4) Solutions to problems of particular difficulty; and,
- 5) Review of and approval of project data and reports prior to submittal to the City of Greensboro.

Director of Laboratory Services

Mr. Sid Champion, senior vice president, is RAL's Director of Laboratory Services. The Director of Laboratory Services responsibilities include:

- 1) The scheduling and management of daily laboratory operations and the ongoing implementation of appropriate quality control measures;
- 2) Provides technical guidance;
- 3) Assures that the staff is suitably qualified and trained;
- 4) Makes decisions concerning staffing, instrumentation/equipment, facilities and quality program enhancement requirements;
- 5) Assures appropriate corrective action is taken, as necessary, and documented in response to analytical and quality control issues; and
- 6) Monitors health and safety in the laboratory and, in conjunction with safety committee, makes recommendations for improvements.

Laboratory Project Manager

Due to the importance of this project, Mr. Sid Champion will also serve in the capacity of Laboratory Project Manager. The Laboratory Project Manager's responsibilities include:

- 1) Coordinating client sample submissions, establishing quality control requirements, and project completion dates;
- 2) Communication of problems encountered during analyses to the Director of Laboratory Services;
- 3) Communicating project changes to the appropriate laboratory staff;
- 4) Overseeing data report preparation and reviewing project data for completeness, accuracy, and compliance to project requirements;
- 5) Submission of analytical results to the Director of Laboratory Services.

Quality Assurance Director

Ms. Stephanie Knott serves as RAL's Quality Assurance Director. The QA manager reports directly to the Director of Laboratory Services who is a Senior Vice President and has complete authority over laboratory operations. Her responsibilities for this program include:

- 1) Overseeing the quality assurance program and auditing its operational execution, directing quality issue resolution and assuring the implementation of suitable corrective action;
- 2) Supervision of laboratory performance evaluation studies;
- 3) Review of data, as needed;
- 4) Advises, as necessary, the appropriate levels of management concerning the status of the quality system and deviations from quality program requirements.

The Quality Assurance Director has the authority to limit or halt out-of-control processes when warranted.

Organic Laboratory Manager

Mr. Sal Qazi serves as RAL's Organic Laboratory Manager. As such, he supervises a staff of technicians. His duties include:

- 1) Supervision of sample preparation for volatile organics, base neutral/acid extractables and pesticides/PCBs;
- 2) Supervision of analysis of volatile organics compounds, base neutral/acid extractable compounds, and pesticides/PCBs;
- 3) Monitoring QC data for completeness and compliance with RAL standards;
- 4) Development of QC practices to ensure reliable data/reports.

Wet Chemistry Supervisor

Ms. Stephanie Knott also serves as Wet Chemistry Supervisor. Her responsibilities include:

- 1) Performing analysis on water, wastewater, soil and miscellaneous matrices in the area of wet chemistry;
- 2) Assistance on special projects, as needed;
- 3) Wet chemistry production, supervision, as well as training and the integrity of all analyses performed in the wet chemistry area;

SECTION III - PROJECT DELIVERABLES

A. General Requirements

1. RAL proposes to provide analytical services in full compliance with the Scope of Work identified in the RFP. RAL will provide all appropriate sample containers, suitably prepared and containing the appropriate preservatives, and all required transport coolers with chain of custody (COC) forms included. All field sampling will be conducted by City personnel. RAL will provide analyses and data reports on all samples received from the City in accordance with 40 CFR Part 136.
2. RAL stands ready to analyze samples within the required holding times, as delivered by the City's staff at any time during a 24 hour period. RAL does not normally operate three shifts, but will assign appropriate staff members to be on 24 hour call in order to meet the City's requirements.
3. RAL is currently certified to conduct all analyses required by the RFP and shall maintain its certification throughout the contract period.
4. All data reports generated under this contract will be provided to the city in MS Excel format, or other digital format acceptable to the city, as well as in hardcopy.
5. All data reports will be provided in digital and hardcopy formats within a maximum of 14 days from the receipt of the samples. Raw data will be provided in digital format upon client request.
6. Mr. Sidney L. Champion will be the RAL contact person who will be available, on a 24 hour per day basis, to be notified when City personnel are ready to mobilize for a storm water sampling event. Mr. Champion will assure that personnel are available at RAL's facility to receive samples from City personnel. Mr. Champion may be contacted during regular business hours at 336-996-2841. His after hours phone number is 336-408-7926.

B. Specific Requirements

1. Project Deliverable Package 1 – Fixed Interval Sampling

The scope of work for this package is to provide analyses for surface water samples collected monthly from each of twenty sample locations (Total 480 samples).

a. Required Analyses

1) Grab Samples

Table 1 lists the analyses to be performed on each of 480 monthly grab samples.

TABLE 1 - SAMPLE PARAMETERS, DELIVERABLES PACKAGE 1 (AMBIENT STREAM MONITORING)	
Parameters	Parameters
BOD	COD
Total Suspended Solids	Total Dissolved Solids
Total Kjeldhal Nitrogen	Fecal Coliform
Nitrate, Nitrite	Total Phosphorus
Hardness	Alkalinity
Cadmium	Copper
Lead	Zinc
Chlorides (January)	

2. Project Deliverable Package 2 - CWMTF Grant

The scope of work for this package is to provide analyses to determine the treatment efficiency of the wetlands in South Buffalo Creek. Sample collection is weather dependent (72 samples over two (2) years).

a. Required Analyses

Table 2 lists the analyses to be performed on each of 3 sites.

TABLE 2 - GRAB SAMPLE PARAMETERS, DELIVERABLES PACKAGE 2 CWMTF GRANT	
Parameters	Parameters
Cadmium	Chromium
Copper	Lead
Zinc	Nitrate+Nitrite
Total Kjeldhal Nitrogen	Total Ammonia
Total Phosphorus	Orthophosphate
Total Suspended Solids	Oil & Grease
Fecal Coliform	

3. Project Deliverable Package 3 – In-Stream Stormwater Monitoring (ISM)

The scope of work for this package is to provide analysis for stormwater samples collected quarterly from each of four sample locations (Total 16 samples).

a. Required Analyses

1) Composite Samples

Table 3 lists the analyses to be performed of each of 16 quarterly composite samples.

TABLE 3 - COMPOSITE SAMPLE PARAMETERS, DELIVERABLES PACKAGE 3 (ISM SAMPLING)	
Parameters	Parameters
Total Phosphorous	Orthophosphorous
Total Suspended Solids	Ammonia Nitrogen
Total Kjeldhal Nitrogen	Nitrate+Nitrite
Total Organic Carbon	

4. Project Deliverable Package 4 - Special Studies

The scope of work for this package is to provide analyses for storm water samples collected at variable frequencies from various locations in order to accomplish special studies as designed by the city. Sample quantity, parameters, frequency, etc. are not defined at this time.

5. Project Deliverable Package 5 - Quality Control Sampling

The scope of work for this package is to provide analyses for storm water samples collected at variable frequencies from various locations in order to accomplish quality control. Sample quantity, parameters, frequency, etc. are not defined at this time.

SECTION IV - CERTIFICATION

RAL is fully certified by the North Carolina Department of Environment and Natural Resources, Division of Water Quality, Laboratory Certification Section. A copy of the appropriate certification documents is provided in Appendix A. RAL has always conducted its operation in full compliance with all applicable laws and regulations. RAL has never had any warnings, notifications, violations or citations with respect to the conduct of its services.

SECTION V - TERMS and CONDITIONS OF CONTRACT

RAL does not propose, at this time, any special or unusual contract conditions or limitations. We obviously reserve the right to review the City of Greensboro's standard contract for professional consulting services prior to entering into an agreement. We do not, however, anticipate any problems in accepting the city's standard contract.

SECTION VI - PRELIMINARY COST ESTIMATE

The cost per sample by parameter for the parameters listed in the RFP will be as listed in Appendix B. These costs include all sample containers, container preparation, coolers, preservatives, and other materials and services required to produce the analytical data reports required by the City.

RAL proposes to provide all necessary materials and services for the Project Deliverables as defined in the spreadsheet in Appendix B on a fixed fee (lump sum) basis.

Project Deliverables

RAL's proposed fixed fee cost proposal, including volume discount, for the services required to produce the complete Project Deliverables Package which includes all samples as listed in the spread sheets in Appendix B. The lump sum total cost for the project term of 2 years is **\$99,400.00** and lump sum total cost for the project term of 3 years is **\$153,228.00**.

SECTION VII - PRELIMINARY BASIS OF COMPENSATION

In accordance with the desire of the City of Greensboro, as defined in the RFP, RAL proposes that the basis of compensation for work under this contract will be fixed fee (lump sum). The lump sum amount proposed for the Project Deliverables as defined in the RFP are defined above.

SECTION VIII - PRELIMINARY BASIS OF COMPENSATION for ADDITIONAL SERVICES

RAL does not charge a premium for rapid turn-around of analyses (i.e. less than 14 days) when they are needed. We only request that the city keep their requests for rapid turn-around to a minimum by only making such requests when they are absolutely essential for the success of the project.

Fees for analyses which are beyond the scope of the contract will be on a cost per test basis as defined in Appendix B. For parameters not mentioned in the RFP (and therefore not included in Appendix B) RAL proposes to bill the city based on our standard price for the analyses requested.

SECTION IX - REFERENCES

The following list of RAL's current clients is provided in accordance with the RFP. We have selected five of our accounts who are all very familiar with RAL's capabilities to provide the services outlined in this proposal. RAL's current client list numbers about 700 clients and we would be happy to furnish the City with additional references upon request.

<u>CLIENT</u>	<u>CONTACT PERSON</u>	<u>PHONE NUMBER</u>
Vulcan Materials Company P. O Box 4239 Winston-Salem, NC 27115	Tony Johnson	703/813-5017
R. J. Reynolds Tobacco P. O. Box 2959 Winston-Salem, NC 27102	Max Hopkins	336/741-6932
City of Greensboro 2602 South Elm Eugene St Greensboro, NC 27406	David Phlegar Peter Schneider	336/373-2707 336/373-2737
Town of Kernersville P. O. Drawer 728 Kernersville, NC 27285	Russell Radford	336/996-5530
Alamance County Schools 1712 Vaughn Road Burlington, NC 27217	Jay Fuller	336/570-6482

SECTION X – NON-DISCRIMINATION POLICY

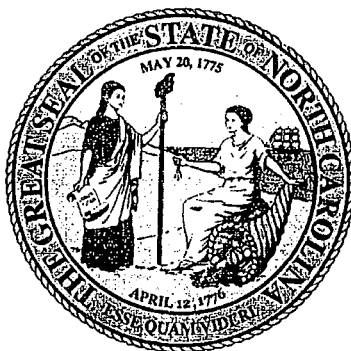
It is the policy of Research & Analytical Laboratories, Inc. (RAL) and warrants that it will comply with the City of Greensboro's Commercial Nondiscrimination Policy, as described under Section V.A.1. of the M/WBE Program. RAL shall not and never has promoted a discrimination policy based on race, color, religion, national origin, biological sex, age or disability nor have or will retaliate against any person/employee for reporting any such instances of discrimination. For the last 41 years RAL has continued to provide equal opportunity for Subcontractors, Vendors, and Suppliers to participate in all of its public sector and private sector subcontracting and supply opportunities provided that nothing contained in this clause shall prohibit or limit otherwise lawful efforts to remedy the effects of marketplace discrimination that have occurred or are occurring in the City of Greensboro's Relevant Marketplace. Research & Analytical Laboratories, Inc. since its formation in 1975 has continued to provide a diverse ethnic employee base and has since its inception maintained a nondiscrimination policy.

APPENDIX A

STATE OF NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

**DIVISION OF WATER RESOURCES
LABORATORY CERTIFICATION BRANCH**

In accordance with the provisions of N.C.G.S. 143-215.3 (a) (1), 143-215.3 (a)(10) and NCAC 2H.0800:



2019

Research & Analytical Laboratories

Is hereby certified to perform environmental analysis as listed on Attachment I and report monitoring data to DEQ for compliance with NPDES effluent, surface water, groundwater, and pretreatment regulations.

By reference 15A NCAC 2H .0800 is made a part of this certificate.

This certificate does not guarantee validity of data generated, but indicates the methodology, equipment, quality control procedures, records, and proficiency of the laboratory have been examined and found to be acceptable.

This certificate shall be valid until 12/31/2019

Certificate No. 34

A handwritten signature in black ink, appearing to read "Dana B. Satterwhite", is written over a horizontal line.

Dana B. Satterwhite

North Carolina Wastewater/Groundwater Laboratory Certification

Certified Parameters Listing

Lab Name: Research & Analytical Laboratories
Address: 106 Short St.
Kernersville, NC 27284

Certificate Number: 34
Effective Date: 1/1/2019
Expiration Date: 12/31/2019
Date of Last Amendment: 11/13/2018

The above named laboratory, having duly met the requirements of 15A NCAC 2H.0800, is hereby certified for the measurement of the parameters listed below.

CERTIFIED PARAMETERS

INORGANIC	SW-846 9014 (Total) (Colorimetric) (Non-Aqueous)
ALKALINITY	SM 4500 CN ⁻ E-2011 (Total) (Aqueous)
SM 2320 B-2011 (Aqueous)	DISSOLVED OXYGEN
BACTERIA - COLIFORM FECAL	SM 4500 O G-2011 (Aqueous)
SM 9222 D-2006 (MF) (Aqueous)	FLUORIDE
SM 9222 D-2006 (MF) 24hr 503 (Non-Aqueous)	SM 4500 F ⁻ C-2011 (Aqueous)
IDEXX Collert @18 (MPN) (Aqueous)	SW-846 9214 (Aqueous)
SM 9221C E-2006 (MPN) (Aqueous)	SW-846 9214 (Non-Aqueous)
SM 9221C E-2006 (MPN) 24hr 503 (Non-Aqueous)	HARDNESS TOTAL
BACTERIA - COLIFORM TOTAL	SM 2340 B-2011 (Ca EPA 200.7, Rev. 4.4, 1994 + Mg EPA 200.7, Rev. 4.4, 1994) (Aqueous)
SM 9221 B-2006 (MPN) (Aqueous)	SM 2340 C-2011 (Aqueous)
BOD	IGNITABILITY
SM 5210 B-2011 (Aqueous)	SW-846 1010 A (Pensky-Martens) (Aqueous)
CBOD	SW-846 1030 (Non-Aqueous)
SM 5210 B-2011 (Aqueous)	INORGANIC PHENOLS
CHLORIDE	EPA 420.1, Rev. 1978 (Aqueous)
SM 4500 Cl ⁻ B-2011 (Aqueous)	SW-846 9065 (Aqueous)
CHLORINE, TOTAL RESIDUAL	LEACHATE PROCEDURE
SM 4500 Cl G-2011 (Aqueous)	SW-846 1312 Metals (Aqueous)
CHLOROPHYLL a	SW-846 1312 Metals (Non-Aqueous)
SM 10200 H, Rev. 2011 (Spectrophotometric) (Aqueous)	SW-846 1312 Organics (Aqueous)
COD	SW-846 1312 Organics (Non-Aqueous)
EPA 410.4, Rev. 2.0, 1993 (Aqueous)	SW-846 1311 Metals (Aqueous)
Hach 8000 (Aqueous)	SW-846 1311 Metals (Non-Aqueous)
COLOR, ADMI	SW-846 1311 Organics (Aqueous)
SM 2120 E-1993 (ADMI) (Aqueous)	SW-846 1311 Organics (Non-Aqueous)
SM 2120 F-2011 (ADMI) (Aqueous)	MBAS
COLOR, PC	SM 5540 C-2011 (Aqueous)
SM 2120 B-2011 (PICO) (Aqueous)	NITROGEN, AMMONIA
CONDUCTIVITY	SM 4500 NH3 D-2011 (Aqueous)
EPA 120.1, Rev. 1982 (Aqueous)	SM 4500 NH3 C-2011 (Aqueous)
CYANIDE	NITROGEN, NITRATE
SW-846 9014 (Amenable) (Colorimetric) (Aqueous)	(NO3 + NO2 SM 4500-NO3 ⁻ E-2011) - (NO2 SM 4500-NO2 ⁻ B-2011) (Aqueous)
SW-846 9014 (Amenable) (Colorimetric) (Non-Aqueous)	Hach 10206 (Aqueous)
SW-846 9014 (Total) (Colorimetric) (Aqueous)	NITROGEN, NITRITE

This certification requires maintenance of an acceptable quality assurance program, use of approved methodology, and satisfactory performance on evaluation samples. Laboratories are subject to civil penalties and/or decertification for infractions as set forth in 15A NCAC 2H.0807.

North Carolina Wastewater/Groundwater Laboratory Certification
Certified Parameters Listing

Lab Name: Research & Analytical Laboratories
Address: 106 Short St.
Kernersville, NC 27284

Certificate Number: 34
Effective Date: 1/1/2019
Expiration Date: 12/31/2019
Date of Last Amendment: 11/13/2018

The above named laboratory, having duly met the requirements of 15A NCAC 2H.0800, is hereby certified for the measurement of the parameters listed below.

CERTIFIED PARAMETERS

SM 4500-NO ₂ ⁻ B-2011 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
NITROGEN, NO ₃ + NO ₂	SW-846 6010 D (Aqueous)
SM 4500 NO ₃ ⁻ E-2011 (Aqueous)	SW-846 6020 B (Aqueous)
Hach 10206 (Aqueous)	SULFATE
NITROGEN, TOTAL KJELDAHL	SM 4500 SO ₄ ²⁻ E-2011 (Aqueous)
SM 4500 Norg B-2011 (SM 4500 NH ₃ D-2011) (Aqueous)	SW-846 9038 (Aqueous)
SM 4500 Norg B-2011 (SM 4500 NH ₃ D-2011) (Non-Aqueous)	SULFIDE
SM 4500 Norg B-2011 (SM 4500 NH ₃ C-2011) (Aqueous)	SM 4500 S ²⁻ D-2011 (Aqueous)
SM 4500 Norg B-2011 (SM 4500 NH ₃ C-2011) (Non-Aqueous)	TEMPERATURE
Hach 10242 (Aqueous)	SM 2550 B-2010 (Aqueous)
OIL & GREASE	TURBIDITY
EPA 1664 Rev. B (Aqueous)	EPA 180.1, Rev. 2.0, 1993 (Aqueous)
SM 5520 B-2011 (Aqueous)	METAL
SW-846 9071 B (Non-Aqueous)	ALUMINUM
ORGANIC CARBON, TOTAL	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
SM 5310 B-2011 (Combustion) (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
SW-846 9060 A (Combustion) (Aqueous)	SM 3120 B-2011 (Aqueous)
PAINT FILTER LIQUIDS	SM 3120 B-2011 (Non-Aqueous)
SW-846 9095B	SW-846 6010 D (Aqueous)
pH	SW-846 6010 D (Non-Aqueous)
SM 4500 H+B-2011 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SW-846 9040 C (Aqueous)	SW-846 6020 B (Aqueous)
SW-846 9045 D (Non-Aqueous)	ANTIMONY
PHOSPHATE, ORTHO	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
SM 4500 P E-2011 (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
PHOSPHORUS, TOTAL	SM 3120 B-2011 (Aqueous)
SM 4500 P E-2011 (Aqueous)	SM 3120 B-2011 (Non-Aqueous)
RESIDUE, DISSOLVED 180 C	SW-846 6010 D (Aqueous)
SM 2540 C-2011 (Aqueous)	SW-846 6010 D (Non-Aqueous)
RESIDUE, SETTLEABLE	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SM 2540 F-2011 (Aqueous)	SW-846 6020 B (Aqueous)
RESIDUE, SUSPENDED	ARSENIC
SM 2540 D-2011 (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
SILICA	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	SM 3120 B-2011 (Aqueous)

This certification requires maintenance of an acceptable quality assurance program, use of approved methodology, and satisfactory performance on evaluation samples. Laboratories are subject to civil penalties and/or decertification for infractions as set forth in 15A NCAC 2H.0807.

North Carolina Wastewater/Groundwater Laboratory Certification
Certified Parameters Listing

Lab Name: Research & Analytical Laboratories
Address: 106 Short St.
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Certificate Number: 34
Effective Date: 1/1/2019
Expiration Date: 12/31/2019
Date of Last Amendment: 11/13/2018

The above named laboratory, having duly met the requirements of 15A NCAC 2H.0800, is hereby certified for the measurement of the parameters listed below.

CERTIFIED PARAMETERS

SM 3120 B-2011 (Non-Aqueous)	SW-846 6010 D (Non-Aqueous)
SW-846 6010 D (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SW-846 6010 D (Non-Aqueous)	SW-846 6020 B (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	CALCIUM
SW-846 6020 B (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
BARIUM	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	SM 3120 B-2011 (Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)	SM 3120 B-2011 (Non-Aqueous)
SM 3120 B-2011 (Aqueous)	SW-846 6010 D (Aqueous)
SM 3120 B-2011 (Non-Aqueous)	SW-846 6010 D (Non-Aqueous)
SW-846 6010 D (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SW-846 6010 D (Non-Aqueous)	SW-846 6020 B (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	CHROMIUM HEXAVALENT
SW-846 6020 B (Aqueous)	SM 3500-Cr-B-2011 (Aqueous)
BERYLLIUM	CHROMIUM TOTAL
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
SM 3120 B-2011 (Aqueous)	SM 3120 B-2011 (Aqueous)
SM 3120 B-2011 (Non-Aqueous)	SM 3120 B-2011 (Non-Aqueous)
SW-846 6010 D (Aqueous)	SW-846 6010 D (Aqueous)
SW-846 6010 D (Non-Aqueous)	SW-846 6010 D (Non-Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SW-846 6020 B (Aqueous)	SW-846 6020 B (Aqueous)
BORON	COBALT
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
SM 3120 B-2011 (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
SW-846 6010 D (Aqueous)	SM 3120 B-2011 (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	SM 3120 B-2011 (Non-Aqueous)
SW-846 6020 B (Aqueous)	SW-846 6010 D (Aqueous)
CADMIUM	SW-846 6010 D (Non-Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)	SW-846 6020 B (Aqueous)
SM 3120 B-2011 (Aqueous)	COPPER
SM 3120 B-2011 (Non-Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
SW-846 6010 D (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)

This certification requires maintenance of an acceptable quality assurance program, use of approved methodology, and satisfactory performance on evaluation samples. Laboratories are subject to civil penalties and/or decertification for infractions as set forth in 15A NCAC 2H.0807.

North Carolina Wastewater/Groundwater Laboratory Certification
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The above named laboratory, having duly met the requirements of 15A NCAC 2H.0800, is hereby certified for the measurement of the parameters listed below.

CERTIFIED PARAMETERS

SM 3120 B-2011 (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
SM 3120 B-2011 (Non-Aqueous)	SM 3120 B-2011 (Aqueous)
SW-846 6010 D (Aqueous)	SM 3120 B-2011 (Non-Aqueous)
SW-846 6010 D (Non-Aqueous)	SW-846 6010 D (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	SW-846 6010 D (Non-Aqueous)
SW-846 6020 B (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
IRON	
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	SW-846 6020 B (Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)	MERCURY
SM 3120 B-2011 (Aqueous)	EPA 245.1, Rev. 3.0, 1994 (Aqueous)
SM 3120 B-2011 (Non-Aqueous)	SW-846 7470 A (Aqueous)
SW-846 6010 D (Aqueous)	SW-846 7470 A (Non-Aqueous)
SW-846 6010 D (Non-Aqueous)	SW-846 7471 B (Non-Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	MOLYBDENUM
SW-846 6020 B (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
LEAD	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	SM 3120 B-2011 (Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)	SM 3120 B-2011 (Non-Aqueous)
SM 3120 B-2011 (Aqueous)	SW-846 6010 D (Aqueous)
SM 3120 B-2011 (Non-Aqueous)	SW-846 6010 D (Non-Aqueous)
SW-846 6010 D (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SW-846 6010 D (Non-Aqueous)	SW-846 6020 B (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	NICKEL
SW-846 6020 B (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
MAGNESIUM	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	SM 3120 B-2011 (Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)	SM 3120 B-2011 (Non-Aqueous)
SM 3120 B-2011 (Aqueous)	SW-846 6010 D (Aqueous)
SM 3120 B-2011 (Non-Aqueous)	SW-846 6010 D (Non-Aqueous)
SW-846 6010 D (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SW-846 6010 D (Non-Aqueous)	SW-846 6020 B (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	POTASSIUM
SW-846 6020 B (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
MANGANESE	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	SM 3120 B-2011 (Aqueous)
	SM 3120 B-2011 (Non-Aqueous)

This certification requires maintenance of an acceptable quality assurance program, use of approved methodology, and satisfactory performance on evaluation samples. Laboratories are subject to civil penalties and/or decertification for infractions as set forth in 15A NCAC 2H.0807.

North Carolina Wastewater/Groundwater Laboratory Certification
Certified Parameters Listing

Lab Name: Research & Analytical Laboratories
Address: 106 Short St.
Kernersville, NC 27284

Certificate Number: 34
Effective Date: 1/1/2019
Expiration Date: 12/31/2019
Date of Last Amendment: 11/13/2018

The above named laboratory, having duly met the requirements of 15A NCAC 2H.0800, is hereby certified for the measurement of the parameters listed below.

CERTIFIED PARAMETERS

SW-846 6010 D (Aqueous)	SM 3120 B-2011 (Non-Aqueous)
SW-846 6010 D (Non-Aqueous)	SW-846 6010 D (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	SW-846 6010 D (Non-Aqueous)
SW-846 6020 B (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SELENIUM	SW-846 6020 B (Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	THALLIUM
EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
SM 3120 B-2011 (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
SM 3120 B-2011 (Non-Aqueous)	SM 3120 B-2011 (Aqueous)
SW-846 6010 D (Aqueous)	SM 3120 B-2011 (Non-Aqueous)
SW-846 6010 D (Non-Aqueous)	SW-846 6010 D (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	SW-846 6010 D (Non-Aqueous)
SW-846 6020 B (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SILVER	SW-846 6020 B (Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	TIN
EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
SM 3120 B-2011 (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
SM 3120 B-2011 (Non-Aqueous)	SW-846 6010 D (Aqueous)
SW-846 6010 D (Aqueous)	SW-846 6010 D (Non-Aqueous)
SW-846 6010 D (Non-Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	SW-846 6020 B (Aqueous)
SW-846 6020 B (Aqueous)	TITANIUM
SODIUM	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)	SW-846 6010 D (Aqueous)
SM 3120 B-2011 (Aqueous)	SW-846 6010 D (Non-Aqueous)
SM 3120 B-2011 (Non-Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SW-846 6010 D (Aqueous)	SW-846 6020 B (Aqueous)
SW-846 6010 D (Non-Aqueous)	VANADIUM
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Aqueous)
SW-846 6020 B (Aqueous)	EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)
STRONTIUM	SM 3120 B-2011 (Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	SM 3120 B-2011 (Non-Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)	SW-846 6010 D (Aqueous)
SM 3120 B-2011 (Aqueous)	SW-846 6010 D (Non-Aqueous)

This certification requires maintenance of an acceptable quality assurance program, use of approved methodology, and satisfactory performance on evaluation samples. Laboratories are subject to civil penalties and/or decertification for infractions as set forth in 15A NCAC 2H.0807.

North Carolina Wastewater/Groundwater Laboratory Certification
Certified Parameters Listing

Lab Name: Research & Analytical Laboratories
 Address: 106 Short St.
 Kernersville, NC 27284

Certificate Number: 34
 Effective Date: 1/1/2019
 Expiration Date: 12/31/2019
 Date of Last Amendment: 11/13/2018

The above named laboratory, having duly met the requirements of 15A NCAC 2H.0800, is hereby certified for the measurement of the parameters listed below.

CERTIFIED PARAMETERS

EPA 200.8, Rev. 5.4, 1994 (Aqueous)	SW-846 8100 (Non-Aqueous)
SW-846 6020 B (Aqueous)	EPA 610 (Aqueous)
ZINC	PURGEABLE, ORGANICS
EPA 200.7, Rev. 4.4, 1994 (Aqueous)	EPA 624.1 (Aqueous)
EPA 200.7, Rev. 4.4, 1994 (Non-Aqueous)	SM 6200 B-2011 (Aqueous)
SM 3120 B-2011(Aqueous)	SW-846 8260 B (Aqueous)
SM 3120 B-2011 (Non-Aqueous)	SW-846 8260 B (Non-Aqueous)
SW-846 6010 D (Aqueous)	TPH DIESEL RANGE, ORGANICS
SW-846 6010 D (Non-Aqueous)	SW-846 8015 C (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	SW-846 8015 C (Non-Aqueous)
SW-846 6020 B (Aqueous)	TPH GASOLINE RANGE, ORGANICS
ORGANIC	SW-846 8015 C (Aqueous)
1,2, DIBROMOETHANE (EDB)	SW-846 8015 C (Non-Aqueous)
EPA 504.1 (Includes DBCP & TCP) (Aqueous)	VOLATILE PETROLEUM HYDROCARBONS
SW-846 8011 (Includes DBCP) (Aqueous)	MADEP, Feb 2018, Rev. 2.1 (Aqueous)
BASE NEUTRAL/ACID, ORGANICS	MADEP, Feb 2018, Rev. 2.1 (Non-Aqueous)
EPA 625.1 (Aqueous)	
SW-846 8270 D (Aqueous)	
SW-846 8270 D (Non-Aqueous)	
CHLORINATED ACID HERBICIDES	
SW-846 8151 A (Aqueous)	
EXTRACTABLE PETROLEUM HYDROCARBONS	
MADEP, May 2004, Rev. 1.1 (Aqueous)	
MADEP, May 2004, Rev. 1.1 (Non-Aqueous)	
PESTICIDES, ORGANOCHLORINE	
EPA 608.3 (Aqueous)	
SW-846 8081 B (Aqueous)	
SW-846 8081 B (Non-Aqueous)	
POLYCHLORINATED BIPHENYLS (PCBs)	
EPA 608.3 (Aqueous)	
SW-846 8082 A (Aqueous)	
SW-846 8082 A (Non-Aqueous)	
SW-846 8082 A (Oil)	
POLYNUCLEAR AROMATIC HYDROCARBONS	
SW-846 8100 (Aqueous)	

This certification requires maintenance of an acceptable quality assurance program, use of approved methodology, and satisfactory performance on evaluation samples. Laboratories are subject to civil penalties and/or decertification for infractions as set forth in 15A NCAC 2H.0807.

APPENDIX B

Proposed Laboratory Analysis

Proposed Laboratory Analysis FY 2019-2021 (2 Year Contract)

# of sites	20	1	1	3	4	4	Total Samples		
Parameter	Fixed-Interval / Frequency	Fixed-Interval QC	Special Study	CW MTF Grant	Other QC / Frequency	In Stream Wet Weather Sampling	# sites X Frequency	Cost per Test	Total
BOD	24	12	16		16		572	16.00	9,152.00
COD	24	12	16		16		572	10.00	5,720.00
TSS	24	12	16	24	16	8	676	10.00	6,760.00
TDS	24	12					492	10.00	4,920.00
Ammonia				24			72	10.00	720.00
TKN	24	12	16	24	16	8	676	12.00	8,112.00
NO2	24	12				8	524	8.00	4,192.00
NO3	24	12					492	8.00	3,936.00
NO2+NO3			16	24	16	8	184	8.00	1,472.00
Ortho Phos			16	24		8	120	8.00	960.00
Total Phos (manual)	24	12	16	24	16	8	676	10.00	6,760.00
Fecal Coliform	24	12	16	24	16		644	10.00	6,440.00
Hardness	24	12	16				508	8.00	4,064.00
Alkalinity	24	12	16				508	8.00	4,064.00
Oil & Grease			16	24	16		256	35.00	8,960.00
Chloride	4					4	96	8.00	768.00
Iron					16		64	8.00	512.00
Cadmium	24	12		24			564	8.00	4,512.00
Chromium			16	24			88	8.00	704.00
Dissolved Chromium			16				16	8.00	128.00
Copper	24	12	16	24	16		644	8.00	5,152.00
Lead	24	12	16	24	16		644	8.00	5,152.00
Nickel			16				16	8.00	128.00
Zinc	24	12	16	24	16		644	8.00	5,152.00
Total Organic Carbon						8	32	30.00	960.00
Total Estimated Project Lump Sum for 2 Years									\$99,400.00

Proposed Laboratory Analysis

Proposed Laboratory Analysis FY 2019-2021 (3 Year Contract)

[illegible]

APPENDIX C

Minimum Quantitation Limits (MQL's)		
Parameter	Current MQL	Units
Cadmium	0.0002	mg/l
Copper	0.002	mg/l
Lead	0.003	mg/l
Zinc	0.005	mg/l
Alkalinity	1.0	mg/l
BOD	2.0	mg/l
COD	5.0	mg/l
Fecal Coliform	1.0	CFU/100 ml
Hardness	1.0	mg/l
Ammonia-Nitrogen	0.10	mg/l
Nitrate + Nitrite Nitrogen	0.050	mg/l
Nitrate Nitrogen	0.050	mg/l
Nitrite Nitrogen	0.010	mg/l
Total Dissolved Solids	25.0	mg/l
Total Suspended Solids	5.0	mg/l
Total Kjeldhal Nitrogen	0.10	mg/l
Total Phosphorus	0.010	mg/l
Chloride	1.0	mg/l
Orthophosphorous	0.050	mg/l
Total Organic Carbon	1.0	mg/l