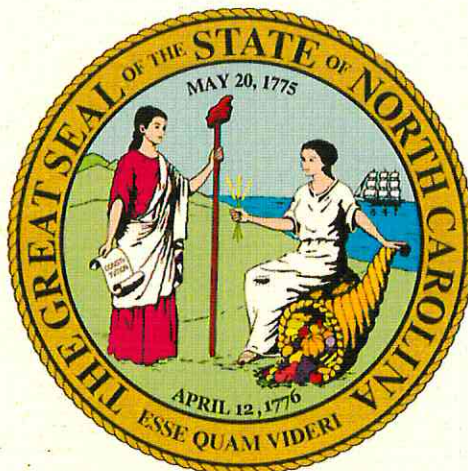


DIVISION OF WATER RESOURCES LABORATORY CERTIFICATION BRANCH

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

Element One Inc.

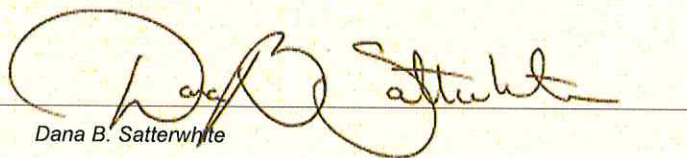
Is hereby certified to perform environmental analysis as listed on Attachment I and report monitoring data to DEQ for compliance with NPDES effluent, surface water, groundwater, and pretreatment regulations.

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. 604


Dana B. Satterwhite

North Carolina Wastewater/Groundwater Laboratory Certification

Certified Parameters Listing

Lab Name: Element One Inc.
 Address: 6319-D Carolina Beach Rd
 Wilmington, NC 28412-

Certificate Number: 604
 Effective Date: 1/1/2019
 Expiration Date: 12/31/2019
 Date of Last Amendment: 11/27/2018

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

<p>INORGANIC</p> <p>ACIDITY SM 2310 B-2011(Aqueous)</p> <p>ALKALINITY SM 2320 B-2011 (Aqueous)</p> <p>BACTERIA - COLIFORM FECAL IDEXX Colilert ®18 (MPN) (Aqueous)</p> <p>BACTERIA - COLIFORM TOTAL SM 9222 B-2006 (MF) (Aqueous)</p> <p>BOD SM 5210 B-2011 (Aqueous)</p> <p>CBOD SM 5210 B-2011 (Aqueous)</p> <p>CHLORIDE EPA 300.0, Rev. 2.1, 1993 (Aqueous). EPA 300.0, Rev. 2.1, 1993 (Non-Aqueous) SM 4500 Cl⁻ B-2011 (Aqueous)</p> <p>CHLORINE, TOTAL RESIDUAL Hach 8167 HR (Aqueous)</p> <p>COD Hach 8000 (Aqueous)</p> <p>COLOR, PC SM 2120 B-2011 (PtCo) (Aqueous)</p> <p>CONDUCTIVITY SM 2510 B-2011 (Aqueous)</p> <p>CYANIDE SW-846 9014 (Total) (Colorimetric) (Aqueous) SW-846 9014 (Total) (Colorimetric) (Non-Aqueous) SM 4500 CN⁻ E-2011 (Total) (Aqueous)</p> <p>DISSOLVED OXYGEN SM 4500 O G-2011 (Aqueous) SM 4500 O C-2011 (Aqueous)</p> <p>FLUORIDE SM 4500 F⁻ C-2011 (Aqueous) EPA 300.0, Rev. 2.1, 1993 (Aqueous)</p>	<p>EPA 300.0, Rev. 2.1, 1993 (Non-Aqueous)</p> <p>HARDNESS TOTAL SM 2340 B-2011 (Ca EPA 200.8, Rev. 5.4, 1994 + Mg EPA 200.8, Rev. 5.4, 1994) (Aqueous) SM 2340 C-2011 (Aqueous)</p> <p>IGNITABILITY SW-846 1030 (Non-Aqueous)</p> <p>LEACHATE PROCEDURE SW-846 1312 Metals (Aqueous) SW-846 1312 Metals (Non-Aqueous) SW-846 1311 Metals (Aqueous) SW-846 1311 Metals (Non-Aqueous)</p> <p>MBAS SM 5540 C-2011 (Aqueous)</p> <p>NITROGEN, AMMONIA SM 4500 NH₃ D-2011 (Aqueous)</p> <p>NITROGEN, NITRATE EPA 300.0, Rev. 2.1, 1993 (Aqueous) EPA 300.0, Rev. 2.1, 1993 (Non-Aqueous)</p> <p>NITROGEN, NITRITE SM 4500-NO₂⁻ B-2011 (Aqueous) EPA 300.0, Rev. 2.1, 1993 (Aqueous) EPA 300.0, Rev. 2.1, 1993 (Non-Aqueous)</p> <p>NITROGEN, NO₃ + NO₂ SM 4500 NO₃⁻ E-2011 (Aqueous) EPA 300.0, Rev. 2.1, 1993 (Aqueous) EPA 300.0, Rev. 2.1, 1993 (Non-Aqueous)</p> <p>NITROGEN, TOTAL KJELDAHL SM 4500 Norg C-2011 (SM 4500 NH₃ D-2011) (Aqueous) SM 4500 Norg C-2011 (SM 4500 NH₃ D-2011) (Non-Aqueous)</p> <p>ORGANIC CARBON, TOTAL SM 5310 B-2011 (Combustion) (Aqueous) SW-846 9060 A (Combustion) (Aqueous)</p> <p>pH SM 4500 H+B-2011 (Aqueous) SW-846 9040 C (Aqueous)</p>
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CERTIFIED PARAMETERS

SW-846 9045 D (Non-Aqueous)	SW-846 6020 B (Non-Aqueous)
PHOSPHATE, ORTHO	ANTIMONY
SM 4500 P E-2011 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
EPA 300.0, Rev. 2.1, 1993 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
EPA 300.0, Rev. 2.1, 1993 (Non-Aqueous)	SW-846 6020 B (Aqueous)
PHOSPHORUS, TOTAL	SW-846 6020 B (Non-Aqueous)
SM 4500 P E-2011 (Aqueous)	ARSENIC
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
RESIDUE, DISSOLVED 180 C	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
SM 2540 C-2011 (Aqueous)	SW-846 6020 B (Aqueous)
RESIDUE, SETTLEABLE	SW-846 6020 B (Non-Aqueous)
SM 2540 F-2011 (Aqueous)	BARIUM
RESIDUE, SUSPENDED	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SM 2540 D-2011 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
RESIDUE, TOTAL	SW-846 6020 B (Aqueous)
SM 2540 B-2011 (Aqueous)	SW-846 6020 B (Non-Aqueous)
SILICA	BERYLLIUM
SM 4500 SiO2 C-2011 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SULFATE	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
SM 4500 SO4 ²⁻ D-2011 (Aqueous)	SW-846 6020 B (Aqueous)
EPA 300.0, Rev. 2.1, 1993 (Aqueous)	SW-846 6020 B (Non-Aqueous)
EPA 300.0, Rev. 2.1, 1993 (Non-Aqueous)	BORON
SULFIDE	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
Hach 8131 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
SM 4500 S ²⁻ D-2011 (Aqueous)	SW-846 6020 B (Aqueous)
SW-846 9034 (Aqueous)	SW-846 6020 B (Non-Aqueous)
TEMPERATURE	CADMIUM
SM 2550 B-2010 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
TURBIDITY	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
SM 2130 B-2011 (Aqueous)	SW-846 6020 B (Aqueous)
METAL	SW-846 6020 B (Non-Aqueous)
ALUMINUM	CALCIUM
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
SW-846 6020 B (Aqueous)	SW-846 6020 B (Aqueous)

North Carolina Wastewater/Groundwater Laboratory Certification

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CERTIFIED PARAMETERS

SW-846 6020 B (Non-Aqueous)	MANGANESE
CHROMIUM HEXAVALENT	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
SM 3500-Cr-B-2011 (Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
EPA 218.6, Rev. 3.3, 1994 (Aqueous)	SW-846 6020 B (Aqueous)
SW-846 7199 (Aqueous)	SW-846 6020 B (Non-Aqueous)
CHROMIUM TOTAL	MERCURY
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	EPA 245.1, Rev. 3.0, 1994 (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)	SW-846 7471 B (Non-Aqueous)
SW-846 6020 B (Aqueous)	MOLYBDENUM
SW-846 6020 B (Non-Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
COBALT	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	SW-846 6020 B (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)	SW-846 6020 B (Non-Aqueous)
SW-846 6020 B (Aqueous)	NICKEL
SW-846 6020 B (Non-Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
COPPER	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	SW-846 6020 B (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)	SW-846 6020 B (Non-Aqueous)
SW-846 6020 B (Aqueous)	POTASSIUM
SW-846 6020 B (Non-Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
IRON	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	SW-846 6020 B (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)	SW-846 6020 B (Non-Aqueous)
SW-846 6020 B (Aqueous)	SELENIUM
SW-846 6020 B (Non-Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
LEAD	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	SW-846 6020 B (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)	SW-846 6020 B (Non-Aqueous)
SW-846 6020 B (Aqueous)	SILVER
SW-846 6020 B (Non-Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)
MAGNESIUM	EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Aqueous)	SW-846 6020 B (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)	SW-846 6020 B (Non-Aqueous)
SW-846 6020 B (Aqueous)	SODIUM
SW-846 6020 B (Non-Aqueous)	EPA 200.8, Rev. 5.4, 1994 (Aqueous)

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CERTIFIED PARAMETERS

EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
SW-846 6020 B (Aqueous)
SW-846 6020 B (Non-Aqueous)

STRONTIUM

EPA 200.8, Rev. 5.4, 1994 (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
SW-846 6020 B (Aqueous)
SW-846 6020 B (Non-Aqueous)

THALLIUM

EPA 200.8, Rev. 5.4, 1994 (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
SW-846 6020 B (Aqueous)
SW-846 6020 B (Non-Aqueous)

TIN

EPA 200.8, Rev. 5.4, 1994 (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
SW-846 6020 B (Aqueous)
SW-846 6020 B (Non-Aqueous)

TITANIUM

EPA 200.8, Rev. 5.4, 1994 (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
SW-846 6020 B (Aqueous)
SW-846 6020 B (Non-Aqueous)

VANADIUM

EPA 200.8, Rev. 5.4, 1994 (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
SW-846 6020 B (Aqueous)
SW-846 6020 B (Non-Aqueous)

ZINC

EPA 200.8, Rev. 5.4, 1994 (Aqueous)
EPA 200.8, Rev. 5.4, 1994 (Non-Aqueous)
SW-846 6020 B (Aqueous)
SW-846 6020 B (Non-Aqueous)