



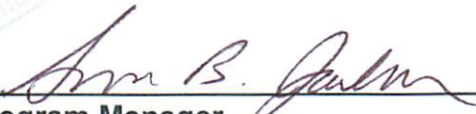
Environmental Laboratory Certification Program

In accordance with the provisions of Regulation 61-81, entitled "State Environmental Laboratory Certification Regulations"

**DAVIS & BROWN INC
124 W MCIVER RD
FLORENCE, SOUTH CAROLINA 29501-1515**

is hereby certified to perform analyses as documented on the attached parameter list(s). This certification does not guarantee validity of the data generated, but indicates the laboratory's adherence to prescribed methodology, quality control, records keeping, and reporting procedures. This certificate is the property of S.C. DHEC and must be surrendered upon demand. This certificate is non-transferable and is valid only for the parameters and methodology listed on the attached parameter list(s).

Laboratory Director: WILLIAM V WARD
Certifying Authority: SC
Date of Issue: January 08, 2018
Date of Expiration: January 12, 2019
Certificate Number: 21117001



Program Manager
Office of Environmental Laboratory Certification

**SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
ENVIRONMENTAL LABORATORY CERTIFICATION PROGRAM**

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CLEAN WATER ACT

INORGANIC - DEMAND

| | | |
|--------------------------------|-------------------|---|
| BIOCHEMICAL OXYGEN DEMAND(BOD) | SM 5210 B-2011 | 5 DAY DO DEPLETION |
| CARBONACEOUS BOD | SM 5210 B-2011 | 5 DAY DO DEPLETION |
| CHEMICAL OXYGEN DEMAND (COD) | EPA 410.4 (1993) | SPECTROPHOTOMETRIC, MANUAL OR AUTOMATED |
| DISSOLVED OXYGEN | HACH 10360 (2011) | LUMINESCENCE BASED SENSOR |
| DISSOLVED OXYGEN | SM 4500-O G-2011 | ELECTRODE |
| TOTAL ORGANIC CARBON (TOC) | SM 5310 B-2011 | HIGH TEMPERATURE COMBUSTION (TOC) |

INORGANIC - MINERAL

| | | |
|-------------------------|------------------|-----------------------------|
| ALKALINITY | SM 2320 B-2011 | TITRIMETRIC |
| CHLORIDE | EPA 300.0 (1993) | ION CHROMATOGRAPHY |
| HYDROGEN-ION CONC. (PH) | SM 4500-H B-2011 | ELECTROMETRIC MEASUREMENT |
| SPECIFIC CONDUCTANCE | SM 2510 B-2011 | CONDUCTANCE AT 25 DEGREES C |
| SULFATE | EPA 300.0 (1993) | ION CHROMATOGRAPHY |

INORGANIC - MISCELLANEOUS

| | | |
|------------------------------|---------------------|---|
| CYANIDE | SM 4500-CN B,C-2011 | SAMPLE PRETREATMENT, MANUAL DISTILLATION |
| CYANIDE | SM 4500-CN E-2011 | SPECTROPHOTOMETRIC (MANUAL) |
| OIL & GREASE | EPA 1664B (2010) | OIL & GREASE - HEM/SGT-HEM |
| PHENOLICS, TOTAL RECOVERABLE | EPA 420.1 (1978) | MANUAL DISTILLATION WITH COLORIMETRIC(4AAP) |
| RESIDUAL CHLORINE | SM 4500-CL G-2011 | DPD COLORIMETRIC METHOD |
| SULFIDE | SM 4500-S2 F-2011 | TITRIMETRIC (IODINE) |
| TEMPERATURE | SM 2550 B-2010 | THERMOMETRIC |

INORGANIC - NUTRIENT

| | | |
|------------------------|---------------------|---------------------------------------|
| AMMONIA-NITROGEN | SM 4500-NH3 B-2011 | DISTILLATION |
| AMMONIA-NITROGEN | SM 4500-NH3 D-2011 | ELECTRODE |
| KJELDAHL-NITROGEN | SM 4500-NH3 B-2011 | DISTILLATION |
| KJELDAHL-NITROGEN | SM 4500-NH3 D-2011 | ELECTRODE |
| NITRATE-NITROGEN | EPA 300.0 (1993) | ION CHROMATOGRAPHY |
| NITRITE-NITROGEN | EPA 300.0 (1993) | ION CHROMATOGRAPHY |
| NITRITE-NITROGEN | SM 4500-NO2 B-2011 | SPECTROPHOTOMETRIC (MANUAL) |
| PHOSPHORUS | SM 4500-P B(5)-2011 | DIGESTION |
| PHOSPHORUS | SM 4500-P E-2011 | ASCORBIC ACID (MANUAL SINGLE REAGENT) |
| TOTAL ORGANIC NITROGEN | EPA TKN-NH3-N | TOTAL KJELDAHL-N MINUS AMMONIA-N |

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CLEAN WATER ACT

INORGANIC - RESIDUE

| | | |
|--------------------------------|------------------|------------------------------|
| RESIDUE, FILTERABLE (TDS) | SM 2540 C-2011 | GRAVIMETRIC (180) |
| RESIDUE, NONFILTERABLE (TSS) | SM 2540 D-2011 | GRAVIMETRIC 103-105 |
| RESIDUE, TOTAL (TS) | SM 2540 B-2011 | GRAVIMETRIC 103-105 |
| RESIDUE, VOLATILE (VS) | EPA 160.4 (1979) | GRAVIMETRIC (550) |
| TOTAL, FIXED & VOLATILE SOLIDS | SM 2540G (18TH) | PERCENT SOLIDS FOR BIOSOLIDS |

INORGANIC - TRACE METAL

| | | |
|-------------------------------|-------------------|------------------------------------|
| ALUMINUM | EPA 200.7 (1994) | ICP/AES |
| ANTIMONY | EPA 200.7 (1994) | ICP/AES |
| ANTIMONY | SM 3113 B-2010 | AA FURNACE |
| ARSENIC | EPA 200.7 (1994) | ICP/AES |
| ARSENIC | SM 3113 B-2010 | AA FURNACE |
| BARIUM | EPA 200.7 (1994) | ICP/AES |
| BERYLLIUM | EPA 200.7 (1994) | ICP/AES |
| BORON | EPA 200.7 (1994) | ICP/AES |
| CADMIUM | EPA 200.7 (1994) | ICP/AES |
| CADMIUM | SM 3113 B-2010 | AA FURNACE |
| CALCIUM | EPA 200.7 (1994) | ICP/AES |
| CHROMIUM | EPA 200.7 (1994) | ICP/AES |
| CHROMIUM | SM 3113 B-2010 | AA FURNACE |
| CHROMIUM, HEXAVALENT | SM 3500-CR B-2011 | COLORIMETRIC (DIPHYENYL CARBAZIDE) |
| COBALT | EPA 200.7 (1994) | ICP/AES |
| COPPER | EPA 200.7 (1994) | ICP/AES |
| COPPER | SM 3113 B-2010 | AA FURNACE |
| IRON | EPA 200.7 (1994) | ICP/AES |
| LEAD | EPA 200.7 (1994) | ICP/AES |
| LEAD | SM 3113 B-2010 | AA FURNACE |
| MAGNESIUM | EPA 200.7 (1994) | ICP/AES |
| MANGANESE | EPA 200.7 (1994) | ICP/AES |
| MERCURY | EPA 245.1 (1994) | COLD VAPOR (MANUAL) |
| MOLYBDENUM | EPA 200.7 (1994) | ICP/AES |
| NICKEL | EPA 200.7 (1994) | ICP/AES |
| POTASSIUM | EPA 200.7 (1994) | ICP/AES |
| SAMPLING FOR LOW-LEVEL METALS | EPA 1669 (1996) | SAMPLING FOR LOW-LEVEL METALS |
| SELENIUM | EPA 200.7 (1994) | ICP/AES |
| SELENIUM | SM 3113 B-2010 | AA FURNACE |
| SILVER | EPA 200.7 (1994) | ICP/AES |
| SILVER | SM 3113 B-2010 | AA FURNACE |
| SODIUM | EPA 200.7 (1994) | ICP/AES |

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CLEAN WATER ACT

INORGANIC - TRACE METAL

THALLIUM
VANADIUM
ZINC

EPA 279.2 (1978)
EPA 200.7 (1994)
EPA 200.7 (1994)

AA FURNACE
ICP/AES
ICP/AES

MICROBIOLOGY

BIOSOLIDS PREPARATION
E. COLI (MPN)
ENTEROCOCCI (MPN)
FECAL COLIFORM (MF)
FECAL COLIFORM (MPN)
FECAL COLIFORM (MPN)

EPA/625/R-92/013 APP F
SM 9223 B-2004
SM 9230 D-2007
SM 9222 D-2006
COLILERT-18 (2010)
SM 9221-C E-2006

SLUDGE ANALYSIS PREPARATION
COLILERT/COLILERT-18
ENTEROLERT MULTIPLE WELL
MEMBRANE FILTRATION
MULTIPLE WELL
MULTIPLE TUBE FERMENTATION

SAFE DRINKING WATER ACT

INORGANIC - DEMAND

TOTAL AND DISSOLVED ORGANIC CARBON

SM 5310 B-2011

HIGH TEMPERATURE COMBUSTION (TOC)

INORGANIC - MINERAL

ALKALINITY
CHLORIDE
FLUORIDE
HYDROGEN-ION CONC. (PH)
SPECIFIC CONDUCTANCE
SULFATE

SM 2320 B-2011
EPA 300.0 (1993)
SM 4500-F C-2011
SM 4500-H B-2011
SM 2510 B-2011
EPA 300.0 (1993)

TITRIMETRIC
ION CHROMATOGRAPHY
ELECTRODE (MANUAL)
ELECTROMETRIC MEASUREMENT
CONDUCTANCE AT 25 DEGREES C
ION CHROMATOGRAPHY

INORGANIC - MISCELLANEOUS

COLOR
RESIDUAL CHLORINE
TEMPERATURE
TURBIDITY

SM 2120 B-2011
SM 4500-CL G-2011
SM 2550 B-2010
EPA 180.1 (1993)

VISUAL - PLATINUM COBALT
DPD COLORIMETRIC METHOD
THERMOMETRIC
NEPHELOMETRIC

INORGANIC - NUTRIENT

NITRATE-NITROGEN
NITRITE-NITROGEN
NITRITE-NITROGEN

EPA 300.0 (1993)
EPA 300.0 (1993)
SM 4500-NO2 B-2011

ION CHROMATOGRAPHY
ION CHROMATOGRAPHY
SPECTROPHOTOMETRIC (MANUAL)

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SAFE DRINKING WATER ACT

INORGANIC - NUTRIENT

| | | |
|----------------|------------------|---------------------------------------|
| ORTHOPHOSPHATE | SM 4500-P E-2011 | ASCORBIC ACID (MANUAL SINGLE REAGENT) |
|----------------|------------------|---------------------------------------|

INORGANIC - RESIDUE

| | | |
|---------------------------|----------------|-------------------|
| RESIDUE, FILTERABLE (TDS) | SM 2540 C-2011 | GRAVIMETRIC (180) |
|---------------------------|----------------|-------------------|

INORGANIC - TRACE METAL

| | | |
|-----------|------------------|---------------------|
| ALUMINUM | EPA 200.7 (1994) | ICP/AES |
| ANTIMONY | SM 3113 B-2010 | AA FURNACE |
| ARSENIC | SM 3113 B-2010 | AA FURNACE |
| BARIUM | EPA 200.7 (1994) | ICP/AES |
| BERYLLIUM | EPA 200.7 (1994) | ICP/AES |
| CADMIUM | EPA 200.7 (1994) | ICP/AES |
| CADMIUM | SM 3113 B-2010 | AA FURNACE |
| CALCIUM | EPA 200.7 (1994) | ICP/AES |
| CHROMIUM | EPA 200.7 (1994) | ICP/AES |
| COPPER | EPA 200.7 (1994) | ICP/AES |
| COPPER | SM 3113 B-2010 | AA FURNACE |
| IRON | EPA 200.7 (1994) | ICP/AES |
| LEAD | SM 3113 B-2010 | AA FURNACE |
| MAGNESIUM | EPA 200.7 (1994) | ICP/AES |
| MANGANESE | EPA 200.7 (1994) | ICP/AES |
| MERCURY | SM 3112 B-2011 | COLD VAPOR (MANUAL) |
| NICKEL | EPA 200.7 (1994) | ICP/AES |
| SELENIUM | SM 3113 B-2010 | AA FURNACE |
| SILVER | EPA 200.7 (1994) | ICP/AES |
| SILVER | SM 3113 B-2010 | AA FURNACE |
| SODIUM | EPA 200.7 (1994) | ICP/AES |
| ZINC | EPA 200.7 (1994) | ICP/AES |

MICROBIOLOGY

| | | |
|----------------------------|---------------------|----------------------|
| E. COLI CONFIRMATION | SM 9222G.1C(2)-1997 | EC + MUG |
| HETEROTROPHIC BACTERIA | SM 9215 B-2004 | POUR PLATE METHOD |
| TOTAL COLIFORM (MF) | SM 9222 B-1997 | MEMBRANE FILTRATION |
| TOTAL COLIFORM/E.COLI | SM 9223 B-2004 | COLILERT/COLILERT-18 |
| TOTAL COLIFORM/E.COLI(MPN) | SM 9223 B-2004 | COLILERT/COLILERT-18 |

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SOLID & HAZARDOUS WASTES

INORGANIC - DEMAND

| | | |
|----------------------------|------------------|-----------------------|
| TOTAL ORGANIC CARBON (TOC) | EPA 9060A (2004) | CARBONACEOUS ANALYZER |
|----------------------------|------------------|-----------------------|

INORGANIC - HAZARDOUS WASTE CHARACTERISTICS

| | | |
|-------------------------------|------------------|--|
| IGNITABILITY (PENSKY MARTENS) | EPA 1010A (2004) | PENSKY-MARTENS CLOSED-CUP |
| TCLP - BOTTLE EXTRACTION | EPA 1311 (1992) | TOXICITY CHARACTERISTIC LEACHING PROCEDURE |

INORGANIC - MINERAL

| | | |
|-------------------------|------------------|--------------------|
| CHLORIDE | EPA 9056A (2007) | ION CHROMATOGRAPHY |
| HYDROGEN-ION CONC. (PH) | EPA 9040C (2004) | ELECTROMETRIC |
| HYDROGEN-ION CONC. (PH) | EPA 9045D (2004) | SOIL AND WASTE |
| SULFATE | EPA 9056A (2007) | ION CHROMATOGRAPHY |

INORGANIC - MISCELLANEOUS

| | | |
|---------------------------|------------------|------------|
| PAINT FILTER LIQUIDS TEST | EPA 9095B (2004) | FILTRATION |
|---------------------------|------------------|------------|

INORGANIC - NUTRIENT

| | | |
|------------------|------------------|--------------------|
| NITRATE-NITROGEN | EPA 9056A (2007) | ION CHROMATOGRAPHY |
| NITRITE-NITROGEN | EPA 9056A (2007) | ION CHROMATOGRAPHY |

INORGANIC - TRACE METAL

| | | |
|----------------------|------------------|---------------------------------------|
| ALUMINUM | EPA 6010D (2014) | ICP/AES |
| ANTIMONY | EPA 6010D (2014) | ICP/AES |
| ANTIMONY | EPA 7010 (2007) | GRAPHITE FURNACE AA SPECTROPHOTOMETRY |
| ARSENIC | EPA 6010D (2014) | ICP/AES |
| ARSENIC | EPA 7010 (2007) | GRAPHITE FURNACE AA SPECTROPHOTOMETRY |
| BARIUM | EPA 6010D (2014) | ICP/AES |
| BERYLLIUM | EPA 6010D (2014) | ICP/AES |
| BORON | EPA 6010D (2014) | ICP/AES |
| CADMIUM | EPA 6010D (2014) | ICP/AES |
| CADMIUM | EPA 7010 (2007) | GRAPHITE FURNACE AA SPECTROPHOTOMETRY |
| CALCIUM | EPA 6010D (2014) | ICP/AES |
| CHROMIUM | EPA 6010D (2014) | ICP/AES |
| CHROMIUM | EPA 7010 (2007) | GRAPHITE FURNACE AA SPECTROPHOTOMETRY |
| CHROMIUM, HEXAVALENT | EPA 7196A (1992) | COLORIMETRIC |
| COBALT | EPA 6010D (2014) | ICP/AES |

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SOLID & HAZARDOUS WASTES

INORGANIC - TRACE METAL

| | | |
|------------------|------------------|--|
| COPPER | EPA 6010D (2014) | ICP/AES |
| IRON | EPA 6010D (2014) | ICP/AES |
| LEAD | EPA 6010D (2014) | ICP/AES |
| LEAD | EPA 7010 (2007) | GRAPHITE FURNACE AA SPECTROPHOTOMETRY |
| MAGNESIUM | EPA 6010D (2014) | ICP/AES |
| MANGANESE | EPA 6010D (2014) | ICP/AES |
| MERCURY | EPA 7470A (1994) | COLD VAPOR TECHNIQUE LIQUID |
| METALS DIGESTION | EPA 3005A (1992) | AQUEOUS ACID DIGESTION TOTAL OR DISSOLVED METALS FLAA OR ICP |
| METALS DIGESTION | EPA 3010A (1992) | AQUEOUS ACID DIGESTION TOTAL METALS FLAA OR ICP |
| METALS DIGESTION | EPA 3015A (2007) | AQUEOUS MICROWAVE ACID DIGESTION TOTAL METALS FLAA OR ICP |
| METALS DIGESTION | EPA 3020A (1992) | AQUEOUS ACID DIGESTION TOTAL METALS GFAA |
| METALS DIGESTION | EPA 3050B (1996) | SOLID ACID DIGESTION |
| METALS DIGESTION | EPA 3051A (2007) | NON-AQUEOUS MICROWAVE ACID DIGESTION |
| METALS DIGESTION | EPA 3060A (1996) | ALKALINE DIGESTION HEX CHROM |
| MOLYBDENUM | EPA 6010D (2014) | ICP/AES |
| NICKEL | EPA 6010D (2014) | ICP/AES |
| POTASSIUM | EPA 6010D (2014) | ICP/AES |
| SELENIUM | EPA 6010D (2014) | ICP/AES |
| SELENIUM | EPA 7010 (2007) | GRAPHITE FURNACE AA SPECTROPHOTOMETRY |
| SILVER | EPA 6010D (2014) | ICP/AES |
| SILVER | EPA 7010 (2007) | GRAPHITE FURNACE AA SPECTROPHOTOMETRY |
| THALLIUM | EPA 7010 (2007) | GRAPHITE FURNACE AA SPECTROPHOTOMETRY |
| VANADIUM | EPA 6010D (2014) | ICP/AES |
| ZINC | EPA 6010D (2014) | ICP/AES |