

# West Virginia

## Department of Environmental Protection

hereby certifies

### Microbac – Ohio Valley Division

to perform analyses for the purpose of determining compliance with the requirements of the state's natural resources and environmental programs when required by an order issued by the agency or required by statute.

This certificate does not guarantee the 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 is the property of the Department of Environmental Protection

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Certificate number



Quality Assurance Officer



October 7, 2008

Date Issued

Certification originally granted 4/30/1993



Director

ATTACHMENT I

WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF WATER AND WASTE MANAGEMENT

List of Certified Parameters  
for

**MICROBAC LABORATORIES, INC. OHIO**  
**VALLEY DIVISION**  
**MARIETTA, OHIO**

PARAMETERS CERTIFIED

NONPOTABLE WATER INORGANIC NONMETALS

| <u>ANALYTE</u>                    | <u>METHOD</u>         | <u>TECHNOLOGY</u>  |
|-----------------------------------|-----------------------|--------------------|
| Acidity                           | SM2310 B-11           | Titrimetric        |
| Alkalinity                        | EPA310.2 Rev 2.2-1974 | Colorimetric       |
| Alkalinity                        | SM2320 B-11           | Titrimetric        |
| Ammonia                           | EPA350.1 Rev 2.0-1993 | Spectrophotometric |
| Bromide                           | EPA300.0 Rev 2.1-1993 | IC                 |
| Bromide                           | SW9056                | IC                 |
| Bromide                           | SW9056A               | IC                 |
| Carbon, Total Organic (TOC)       | SM5310 C-11           | Oxidation          |
| Carbon, Total Organic (TOC)       | SW9060A               | Oxidation          |
| Chloride                          | EPA300.0 Rev 2.1-1993 | IC                 |
| Chloride                          | SM4500-Cl E-11        | Spectrophotometric |
| Chloride                          | SW9056                | IC                 |
| Chloride                          | SW9056A               | IC                 |
| Chlorine, Residual                | SM4500-Cl G-11        | Spectrophotometric |
| Chromium VI, Dissolved            | SM3500-Cr B-11        | Spectrophotometric |
| Chromium VI, Dissolved            | SW3060A               | Digestion          |
| Chromium VI, Dissolved            | SW7196A               | Spectrophotometric |
| Color                             | SM2120 B-11           | Visual Comparison  |
| Conductance, Specific             | EPA120.1 Rev 1982     | Probe              |
| Conductance, Specific             | SM2510 B-11           | Probe              |
| Cyanide, Amenable to Chlorination | SM4500-CN E-11        | Spectrophotometric |
| Cyanide, Amenable to Chlorination | SM4500-CN G-11        | Digestion          |
| Cyanide, Amenable to Chlorination | SW9010C               | Distillation       |
| Cyanide, Total                    | SM4500-CN C-11        | Distillation       |
| Cyanide, Total                    | SM4500-CN E-11        | Spectrophotometric |
| Cyanide, Total                    | SW9010C               | Distillation       |
| Cyanide, Total                    | SW9014                | Spectrophotometric |
| Cyanide, Weak Acid Dissociable    | SM4500-CN E-11        | Spectrophotometric |
| Cyanide, Weak Acid Dissociable    | SM4500-CN I-11        | Distillation       |
| Fluoride                          | EPA300.0 Rev 2.1-1993 | IC                 |
| Fluoride                          | SM4500-F B-11         | Distillation       |

| <u>ANALYTE</u>                                 | <u>METHOD</u>         | <u>TECHNOLOGY</u>  |
|--|-----------------------|--------------------|
| Fluoride                                       | SM4500-F C-11         | ISE                |
| Fluoride                                       | SW9056                | IC                 |
| Fluoride                                       | SW9056A               | IC                 |
| Hardness, Calcium                              | SM2340 B-11           | Calculation        |
| Hardness, Total                                | EPA130.2 Rev 1978     | Titrimetric        |
| Hardness, Total                                | SM2340 B-11           | Calculation        |
| Hardness, Total                                | SM2340 C-11           | Titrimetric        |
| Nitrate  | EPA300.0 Rev 2.1-1993 | IC                 |
| Nitrate  | EPA353.2 Rev 2.0-1993 | Calculation        |
| Nitrate  | SW9056                | IC                 |
| Nitrate  | SW9056A               | IC                 |
| Nitrate-Nitrite                                | EPA353.2 Rev 2.0-1993 | Spectrophotometric |
| Nitrate-Nitrite                                | SM4500-NO3 F-00       | Spectrophotometric |
| Nitrite  | EPA300.0 Rev 2.1-1993 | IC                 |
| Nitrite  | SM4500-NO2 B-11       | Spectrophotometric |
| Nitrite  | SW9056                | IC                 |
| Nitrite  | SW9056A               | IC                 |
| Nitrogen, Total Kjeldahl (TKN)                 | EPA351.2 Rev 2.0-1993 | Colorimetric       |
| Oil & Grease                                   | EPA1664 A             | Gravimetric        |
| Oxygen Demand, Biochemical (BOD)               | SM5210 B-11           | Probe              |
| Oxygen Demand, Carbonaceous Biochemical (CBOD) | SM5210 B-11           | Probe              |
| Oxygen Demand, Chemical (COD)                  | HACH 8000             | Spectrophotometric |
| Oxygen, Dissolved                              | SM4500-O C-11         | Probe              |
| Perchlorate                                    | SW6850                | HPLC/ESI/MS        |
| pH (Hydrogen Ion)                              | SM4500-H B-11         | Electrode          |
| pH (Hydrogen Ion)                              | SW9040C               | Electrode          |
| Phenolics, Total                               | EPA420.1 Rev 1978     | Spectrophotometric |
| Phosphorus, Ortho                              | SM4500-P E-11         | Spectrophotometric |
| Phosphorus, Total                              | EPA365.4 Rev 1974     | Spectrophotometric |
| Solids, Dissolved                              | SM2540 C-11           | Gravimetric        |
| Solids, Settleable                             | SM2540 F-11           | Imhoff             |
| Solids, Suspended                              | SM2540 D-11           | Gravimetric        |
| Solids, Total                                  | SM2540 B-11           | Gravimetric        |
| Solids, Volatile                               | EPA160.4              | Gravimetric        |
| Sulfate  | EPA300.0 Rev 2.1-1993 | IC                 |
| Sulfate  | SM4500-SO4 E-11       | Turbidimetric      |
| Sulfate  | SW9056                | IC                 |
| Sulfate  | SW9056A               | IC                 |
| Sulfide  | SM4500-S F-11         | Titrimetric        |
| Sulfide  | SW9030B               | Distillation       |
| Surfactants (MBAS)                             | SM5540 C-11           | Spectrophotometric |
| Turbidity                                      | SM2130 B-11           | Turbidimetric      |

#### NONPOTABLE WATER TRACE METALS

| <u>METAL</u> | <u>METHOD</u>         | <u>TECHNOLOGY</u> |
|--------------|-----------------------|-------------------|
| Aluminum     | EPA200.7 Rev 4.4-1994 | ICP               |
| Aluminum     | SW6010B               | ICP               |
| Aluminum     | SW6010C               | ICP               |
| Antimony     | EPA200.7 Rev 4.4-1994 | ICP               |
| Antimony     | EPA200.8 Rev 5.4-1994 | ICP-MS            |

| <u>METAL</u> | <u>METHOD</u>         | <u>TECHNOLOGY</u> |
|--------------|-----------------------|-------------------|
| Antimony     | SW6010B               | ICP               |
| Antimony     | SW6010C               | ICP               |
| Antimony     | SW6020                | ICP-MS            |
| Antimony     | SW6020A               | ICP-MS            |
| Arsenic      | EPA200.7 Rev 4.4-1994 | ICP               |
| Arsenic      | EPA200.8 Rev 5.4-1994 | ICP-MS            |
| Arsenic      | SW6010B               | ICP               |
| Arsenic      | SW6010C               | ICP               |
| Arsenic      | SW6020                | ICP-MS            |
| Arsenic      | SW6020A               | ICP-MS            |
| Barium       | EPA200.7 Rev 4.4-1994 | ICP               |
| Barium       | EPA200.8 Rev 5.4-1994 | ICP-MS            |
| Barium       | SW6010B               | ICP               |
| Barium       | SW6010C               | ICP               |
| Barium       | SW6020                | ICP-MS            |
| Barium       | SW6020A               | ICP-MS            |
| Beryllium    | EPA200.7 Rev 4.4-1994 | ICP               |
| Beryllium    | EPA200.8 Rev 5.4-1994 | ICP-MS            |
| Beryllium    | SW6010B               | ICP               |
| Beryllium    | SW6010C               | ICP               |
| Boron        | EPA200.7 Rev 4.4-1994 | ICP               |
| Boron        | SW6010B               | ICP               |
| Boron        | SW6010C               | ICP               |
| Cadmium      | EPA200.7 Rev 4.4-1994 | ICP               |
| Cadmium      | EPA200.8 Rev 5.4-1994 | ICP-MS            |
| Cadmium      | SW6010B               | ICP               |
| Cadmium      | SW6010C               | ICP               |
| Cadmium      | SW6020                | ICP-MS            |
| Cadmium      | SW6020A               | ICP-MS            |
| Calcium      | EPA200.7 Rev 4.4-1994 | ICP               |
| Calcium      | SW6010B               | ICP               |
| Calcium      | SW6010C               | ICP               |
| Chromium     | EPA200.7 Rev 4.4-1994 | ICP               |
| Chromium     | EPA200.8 Rev 5.4-1994 | ICP-MS            |
| Chromium     | SW6010B               | ICP               |
| Chromium     | SW6010C               | ICP               |
| Chromium     | SW6020                | ICP-MS            |
| Chromium     | SW6020A               | ICP-MS            |
| Cobalt       | EPA200.7 Rev 4.4-1994 | ICP               |
| Cobalt       | EPA200.8 Rev 5.4-1994 | ICP-MS            |
| Cobalt       | SW6010B               | ICP               |
| Cobalt       | SW6010C               | ICP               |
| Cobalt       | SW6020                | ICP-MS            |
| Cobalt       | SW6020A               | ICP-MS            |
| Copper       | EPA200.7 Rev 4.4-1994 | ICP               |
| Copper       | EPA200.8 Rev 5.4-1994 | ICP-MS            |
| Copper       | SW6010B               | ICP               |
| Copper       | SW6010C               | ICP               |
| Copper       | SW6020                | ICP-MS            |
| Copper       | SW6020A               | ICP-MS            |
| Iron         | EPA200.7 Rev 4.4-1994 | ICP               |

| <u>METAL</u> | <u>METHOD</u>          | <u>TECHNOLOGY</u> |
|--------------|------------------------|-------------------|
| Iron         | SW6010B                | ICP               |
| Iron         | SW6010C                | ICP               |
| Lead         | EPA200.7 Rev 4.4-1994  | ICP               |
| Lead         | EPA200.8 Rev 5.4-1994  | ICP-MS            |
| Lead         | SW6010B                | ICP               |
| Lead         | SW6010C                | ICP               |
| Lead         | SW6020                 | ICP-MS            |
| Lead         | SW6020A                | ICP-MS            |
| Lithium      | SW6010B                | ICP               |
| Lithium      | SW6010C                | ICP               |
| Magnesium    | EPA200.7 Rev 4.4-1994  | ICP               |
| Magnesium    | SW6010B                | ICP               |
| Magnesium    | SW6010C                | ICP               |
| Manganese    | EPA200.7 Rev 4.4-1994  | ICP               |
| Manganese    | EPA200.8 Rev 5.4-1994  | ICP-MS            |
| Manganese    | SW6010B                | ICP               |
| Manganese    | SW6010C                | ICP               |
| Manganese    | SW6020                 | ICP-MS            |
| Manganese    | SW6020A                | ICP-MS            |
| Mercury      | EPA245.1 Rev 3.0-1994  | CVAA              |
| Mercury      | SW7470A                | CVAA              |
| Metals       | SW3015A                | Digestion         |
| Molybdenum   | EPA200.7 Rev 4.4-1994  | ICP               |
| Molybdenum   | SW6010B                | ICP               |
| Molybdenum   | SW6010C                | ICP               |
| Nickel       | EPA200.7 Rev 4.4-1994  | ICP               |
| Nickel       | EPA200.8 Rev 5.4-1994  | ICP-MS            |
| Nickel       | SW6010B                | ICP               |
| Nickel       | SW6010C                | ICP               |
| Nickel       | SW6020                 | ICP-MS            |
| Nickel       | SW6020A                | ICP-MS            |
| Phosphorus   | EPA200.7 Rev 4.4-1994  | ICP               |
| Phosphorus   | SW6010B                | ICP               |
| Phosphorus   | SW6010C                | ICP               |
| Potassium    | EPA200.7 Rev 4.4-1994  | ICP               |
| Potassium    | SW6010B                | ICP               |
| Potassium    | SW6010C                | ICP               |
| Selenium     | EPA200.7 Rev 4.4-1994  | ICP               |
| Selenium     | EPA200.8 Rev 5.4-1994  | ICP-MS            |
| Selenium     | SM3114 B-11 (Modified) | GHAF              |
| Selenium     | SW6010B                | ICP               |
| Selenium     | SW6010C                | ICP               |
| Selenium     | SW6020                 | ICP-MS            |
| Selenium     | SW6020A                | ICP-MS            |
| Silica       | SW6010B                | Calculation       |
| Silica       | SW6010C                | Calculation       |
| Silicon      | SW6010B                | ICP               |
| Silicon      | SW6010C                | ICP               |
| Silver       | EPA200.7 Rev 4.4-1994  | ICP               |
| Silver       | EPA200.8 Rev 5.4-1994  | ICP-MS            |
| Silver       | SW6010B                | ICP               |
| Silver       | SW6010C                | ICP               |

| <u>METAL</u> | <u>METHOD</u>         | <u>TECHNOLOGY</u> |
|--------------|-----------------------|-------------------|
| Silver       | SW6020                | ICP-MS            |
| Silver       | SW6020A               | ICP-MS            |
| Sodium       | EPA200.7 Rev 4.4-1994 | ICP               |
| Sodium       | SW6010B               | ICP               |
| Sodium       | SW6010C               | ICP               |
| Strontium    | SW6010B               | ICP               |
| Strontium    | SW6010C               | ICP               |
| Thallium     | EPA200.7 Rev 4.4-1994 | ICP               |
| Thallium     | EPA200.8 Rev 5.4-1994 | ICP-MS            |
| Thallium     | SW6010B               | ICP               |
| Thallium     | SW6010C               | ICP               |
| Thallium     | SW6020                | ICP-MS            |
| Thallium     | SW6020A               | ICP-MS            |
| Tin          | EPA200.7 Rev 4.4-1994 | ICP               |
| Tin          | SW6010B               | ICP               |
| Tin          | SW6010C               | ICP               |
| Titanium     | EPA200.7 Rev 4.4-1994 | ICP               |
| Titanium     | SW6010B               | ICP               |
| Titanium     | SW6010C               | ICP               |
| Uranium      | SW6020                | ICP-MS            |
| Uranium      | SW6020A               | ICP-MS            |
| Vanadium     | EPA200.7 Rev 4.4-1994 | ICP               |
| Vanadium     | SW6010B               | ICP               |
| Vanadium     | SW6010C               | ICP               |
| Vanadium     | SW6020                | ICP-MS            |
| Vanadium     | SW6020A               | ICP-MS            |
| Zinc         | EPA200.7 Rev 4.4-1994 | ICP               |
| Zinc         | EPA200.8 Rev 5.4-1994 | ICP-MS            |
| Zinc         | SW6010B               | ICP               |
| Zinc         | SW6010C               | ICP               |
| Zinc         | SW6020                | ICP-MS            |
| Zinc         | SW6020A               | ICP-MS            |

#### NONPOTABLE WATER MICROBIOLOGY

| <u>GROUP</u>         | <u>METHOD</u> | <u>TECHNOLOGY</u> |
|----------------------|---------------|-------------------|
| Coliform, Fecal (MF) | SM9222 D-06   | Membrane Filter   |
| Coliform, Total (MF) | SM9222 B-06   | Membrane Filter   |
| E.Coli               | mColiBlue-24  | Single step       |

#### NONPOTABLE WATER VOLATILE ORGANIC CHEMICALS

| <u>GROUP</u>                       | <u>METHOD</u> | <u>TECHNOLOGY</u> |
|------------------------------------|---------------|-------------------|
| Closed System Purge & Trap         | SW5035A       | Extraction        |
| Headspace, Equilibrium Analysis    | SW5021        | Extraction        |
| Purgables                          | EPA624.1      | GC/MS             |
| Purge & Trap For Aqueous Samples   | SW5030B       | Extraction        |
| Purge & Trap For Aqueous Samples   | SW5030C       | Extraction        |
| Total Petroleum Hydrocarbons (GRO) | SW8015C       | GC/FID            |
| Total Petroleum Hydrocarbons (GRO) | SW8015D       | GC/FID            |
| Volatile Organic Compounds         | SW8260B       | GC/MS             |
| Volatile Organic Compounds         | SW8260C       | GC/MS             |

NONPOTABLE WATER EXTRACTABLE AND SEMI-VOLATILE ORGANIC CHEMICALS

| <u>GROUP</u>                            | <u>METHOD</u> | <u>TECHNOLOGY</u> |
|---|---------------|-------------------|
| Base/Neutrals & Acids                   | EPA625.1      | GC/MS             |
| Carbonyl Compounds                      | SW8315A       | HPLC              |
| Chlorinated Herbicides                  | SW8151A       | GC                |
| Continuous Liquid-Liquid                | SW3520C       | Extraction        |
| EDB & DBCP                              | SW8011        | GC/ECD            |
| Florisil Cleanup                        | SW3620C       | Cleanup           |
| Glycols                                 | SW8015C       | GC/FID            |
| Glycols                                 | SW8015D       | GC/FID            |
| Nitroaromatics & Nitramines             | SW8330B       | HPLC              |
| Organic Extraction & Sample Preparation | SW3500C       | Extraction        |
| Organochlorine Pesticides               | SW8081A       | GC                |
| Organochlorine Pesticides               | SW8081B       | GC                |
| Organochlorine Pesticides & PCBs        | EPA608.3      | GC                |
| Polychlorinated Biphenyls               | SW8082        | GC                |
| Polychlorinated Biphenyls               | SW8082A       | GC                |
| Semivolatile Organic Compounds          | SW8270C       | GC/MS             |
| Semivolatile Organic Compounds          | SW8270C       | SIM               |
| Semivolatile Organic Compounds          | SW8270D       | GC/MS             |
| Separatory Funnel Liquid-Liquid         | SW3510C       | Extraction        |
| Silica Gel Cleanup                      | SW3630C       | Cleanup           |
| Solid Phase Extraction                  | SW3535A       | Extraction        |
| Sulfur Cleanup                          | SW3660B       | Cleanup           |
| Sulfuric Acid/Permanganate Cleanup      | SW3665A       | Cleanup           |
| Total Petroleum Hydrocarbons (DRO)      | SW8015C       | GC/FID            |
| Total Petroleum Hydrocarbons (DRO)      | SW8015D       | GC/FID            |

HAZARDOUS WASTE CHARACTERISTICS

| <u>PROCEDURE</u>        | <u>METHOD</u> | <u>TECHNOLOGY</u> |
|-------------------------|---------------|-------------------|
| Corrosivity             | SW9045D       | Electrode         |
| Ignitability            | SW1010A       | Closed Cup        |
| Paint Filter Test       | SW9095B       | Gravimetric       |
| SPLP- Metals & Organics | SW1312        | Extraction        |
| TCLP- Metals & Organics | SW1311        | Extraction        |

SOLID AND CHEMICAL INORGANIC NONMETALS

| <u>ANALYTE</u> | <u>METHOD</u> | <u>TECHNOLOGY</u> |
|----------------|---------------|-------------------|
| Bromide        | SW9056        | IC                |
| Bromide        | SW9056A       | IC                |
| Chloride       | SW9056        | IC                |
| Chloride       | SW9056A       | IC                |
| Fluoride       | SW9056        | IC                |
| Fluoride       | SW9056A       | IC                |
| Halides, Total | SW5050        | Digestion         |
| Nitrate        | SW9056        | IC                |
| Nitrate        | SW9056A       | IC                |
| Nitrite        | SW9056        | IC                |
| Nitrite        | SW9056A       | IC                |
| Percent Solids | ASTM D2216-90 | Gravimetric       |

| <u>ANALYTE</u> | <u>METHOD</u> | <u>TECHNOLOGY</u> |
|----------------|---------------|-------------------|
| Perchlorate    | SW6850        | HPLC/ESI/MS       |
| Sulfate        | SW9056        | IC                |
| Sulfate        | SW9056A       | IC                |
| Sulfide        | SW9034        | Titrimetric       |

SOLID AND CHEMICAL TRACE METALS

| <u>METAL</u> | <u>METHOD</u> | <u>TECHNOLOGY</u> |
|--------------|---------------|-------------------|
| Aluminum     | SW6010B       | ICP               |
| Aluminum     | SW6010C       | ICP               |
| Antimony     | SW6010B       | ICP               |
| Antimony     | SW6010C       | ICP               |
| Antimony     | SW6020        | ICP-MS            |
| Antimony     | SW6020A       | ICP-MS            |
| Arsenic      | SW6010B       | ICP               |
| Arsenic      | SW6010C       | ICP               |
| Arsenic      | SW6020        | ICP-MS            |
| Arsenic      | SW6020A       | ICP-MS            |
| Barium       | SW6010B       | ICP               |
| Barium       | SW6010C       | ICP               |
| Barium       | SW6020        | ICP-MS            |
| Barium       | SW6020A       | ICP-MS            |
| Beryllium    | SW6010B       | ICP               |
| Beryllium    | SW6010C       | ICP               |
| Boron        | SW6010B       | ICP               |
| Boron        | SW6010C       | ICP               |
| Cadmium      | SW6010B       | ICP               |
| Cadmium      | SW6010C       | ICP               |
| Cadmium      | SW6020        | ICP-MS            |
| Cadmium      | SW6020A       | ICP-MS            |
| Calcium      | SW6010B       | ICP               |
| Calcium      | SW6010C       | ICP               |
| Chromium     | SW6010B       | ICP               |
| Chromium     | SW6010C       | ICP               |
| Chromium     | SW6020        | ICP-MS            |
| Chromium     | SW6020A       | ICP-MS            |
| Cobalt       | SW6010B       | ICP               |
| Cobalt       | SW6010C       | ICP               |
| Cobalt       | SW6020        | ICP-MS            |
| Cobalt       | SW6020A       | ICP-MS            |
| Copper       | SW6010B       | ICP               |
| Copper       | SW6010C       | ICP               |
| Copper       | SW6020        | ICP-MS            |
| Copper       | SW6020A       | ICP-MS            |
| Iron         | SW6010B       | ICP               |
| Iron         | SW6010C       | ICP               |
| Lead         | SW6010B       | ICP               |
| Lead         | SW6010C       | ICP               |
| Lead         | SW6020        | ICP-MS            |
| Lead         | SW6020A       | ICP-MS            |
| Magnesium    | SW6010B       | ICP               |
| Magnesium    | SW6010C       | ICP               |



| <u>METAL</u>  | <u>METHOD</u> | <u>TECHNOLOGY</u> |
|---------------|---------------|-------------------|
| Manganese     | SW6010B       | ICP               |
| Manganese     | SW6010C       | ICP               |
| Manganese     | SW6020        | ICP-MS            |
| Manganese     | SW6020A       | ICP-MS            |
| Mercury       | SW7471A       | CVAA              |
| Mercury       | SW7471B       | CVAA              |
| Metals, Total | SW3051A       | Digestion         |
| Molybdenum    | SW6010B       | ICP               |
| Molybdenum    | SW6010C       | ICP               |
| Nickel        | SW6010B       | ICP               |
| Nickel        | SW6010C       | ICP               |
| Nickel        | SW6020        | ICP-MS            |
| Nickel        | SW6020A       | ICP-MS            |
| Phosphorus    | SW6010B       | ICP               |
| Phosphorus    | SW6010C       | ICP               |
| Potassium     | SW6010B       | ICP               |
| Potassium     | SW6010C       | ICP               |
| Selenium      | SW6010B       | ICP               |
| Selenium      | SW6010C       | ICP               |
| Selenium      | SW6020        | ICP-MS            |
| Selenium      | SW6020A       | ICP-MS            |
| Silver        | SW6010B       | ICP               |
| Silver        | SW6010C       | ICP               |
| Silver        | SW6020        | ICP-MS            |
| Silver        | SW6020A       | ICP-MS            |
| Sodium        | SW6010B       | ICP               |
| Sodium        | SW6010C       | ICP               |
| Strontium     | SW6010B       | ICP               |
| Strontium     | SW6010C       | ICP               |
| Thallium      | SW6010B       | ICP               |
| Thallium      | SW6010C       | ICP               |
| Thallium      | SW6020        | ICP-MS            |
| Thallium      | SW6020A       | ICP-MS            |
| Tin           | SW6010B       | ICP               |
| Tin           | SW6010C       | ICP               |
| Titanium      | SW6010B       | ICP               |
| Titanium      | SW6010C       | ICP               |
| Uranium       | SW6020        | ICP-MS            |
| Uranium       | SW6020A       | ICP-MS            |
| Vanadium      | SW6010B       | ICP               |
| Vanadium      | SW6010C       | ICP               |
| Vanadium      | SW6020        | ICP-MS            |
| Vanadium      | SW6020A       | ICP-MS            |
| Zinc          | SW6010B       | ICP               |
| Zinc          | SW6010C       | ICP               |
| Zinc          | SW6020        | ICP-MS            |
| Zinc          | SW6020A       | ICP-MS            |

SOLID AND CHEMICAL VOLATILE ORGANIC CHEMICALS

| <u>GROUP</u>                       | <u>METHOD</u> | <u>TECHNOLOGY</u> |
|------------------------------------|---------------|-------------------|
| Closed System Purge & Trap         | SW5035A       | Extraction        |
| Headspace, Equilibrium Analysis    | SW5021        | Extraction        |
| Total Petroleum Hydrocarbons (GRO) | SW8015C       | GC/FID            |
| Total Petroleum Hydrocarbons (GRO) | SW8015D       | GC/FID            |
| Volatile Organic Compounds         | SW8260B       | GC/MS             |
| Volatile Organic Compounds         | SW8260C       | GC/MS             |

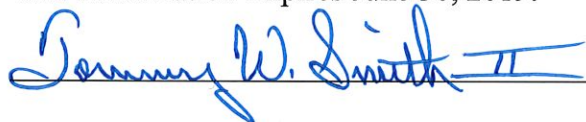
SOLID AND CHEMICAL EXTRACTABLE AND SEMI-VOLATILE ORGANIC CHEMICALS

| <u>GROUP</u>                       | <u>METHOD</u> | <u>TECHNOLOGY</u> |
|------------------------------------|---------------|-------------------|
| Chlorinated Herbicides             | SW8151A       | GC/ECD            |
| Microwave Extraction               | SW3546        | Extraction        |
| Nitroaromatics & Nitramines        | SW8330B       | HPLC              |
| Organochlorine Pesticides          | SW8081A       | GC                |
| Organochlorine Pesticides          | SW8081B       | GC                |
| Polychlorinated Biphenyls          | SW8082        | GC                |
| Polychlorinated Biphenyls          | SW8082A       | GC                |
| Pressurized Fluid (PFE)            | SW3545A       | Extraction        |
| Semivolatile Organic Compounds     | SW8270C       | GC/MS             |
| Semivolatile Organic Compounds     | SW8270D       | GC/MS             |
| Silica Gel Cleanup                 | SW3630C       | Cleanup           |
| Total Petroleum Hydrocarbons (DRO) | SW8015C       | GC/FID            |
| Total Petroleum Hydrocarbons (DRO) | SW8015D       | GC/FID            |
| Ultrasonic                         | SW3550B       | Extraction        |
| Ultrasonic                         | SW3550C       | Extraction        |
| Waste Dilution                     | SW3580A       | Dilution          |

This laboratory may test **ONLY** for those environmental parameters listed above for compliance reporting purposes. All testing must be by the test method cited in the current application for certification.

This Certification Expires June 30, 2019.

Certificate No 361



Issued on January 03, 2019

Tommy W. Smith II  
Quality Assurance Officer

*This certified parameter list supersedes all previously issued parameter lists for this certificate number.*