NORTH CAROLINA WASTEWATER/GROUNDWATER LABORATORY CERTIFICATION APPROVED PROCEDURE FOR FIELD ANALYSIS OF pH

This document provides an approved procedure for the Field analysis of pH per 15A NCAC 2H .0805 (g) (3). The procedures in this document, in addition to all requirements of the EPA approved method found in 40 CFR Part 136.3, must be met.

HOLDING TIME:

- Samples must be analyzed within 15 minutes of collection (40 CFR Part 136 Table II).

METER CALIBRATION:

- Instruments are to be calibrated according to the manufacturer's calibration procedure prior to analysis of samples each day compliance monitoring is performed.

- Use a pH meter accurate and reproducible to 0.1 pH unit (as demonstrated daily by acceptable performance of a check standard buffer) with a range of 0 to 14 and equipped with temperature-compensation adjustment. The meter must be calibrated with at least two buffers. In addition to the calibration buffers, the meter calibration must be verified with a third standard buffer solution. The calibration and check standard buffers must bracket the range of the samples being analyzed. A portion of the buffer solutions should not be used for more than one calibration. Discard any used buffer portions.

- The check standard buffer must read within ±0.1 S.U. to be acceptable. If the meter verification does not read within ±0.1 S.U., the meter must be recalibrated before any samples are analyzed.

- When performing analyses away from the certified laboratory's primary location, a post analysis calibration verification using the check standard buffer must be analyzed at the end of the run. It is recommended that a mid-day check standard buffer be analyzed when samples are analyzed over an extended period of time. The post analysis check standard buffer(s) must read within ±0.1 S.U or corrective actions must be taken.

General Information:

- Samples shall be gently stirred during measurement. Steps must be taken to eliminate cross contamination between measurements (e.g., rinsing and blotting the electrode dry, dipping the electrode in stream multiple times, etc.).

- The units of measure for pH analyses are Standard Units (S.U.). It is recommended that pH be read in one-hundredths (0.01). Values must be reported in tenths (0.1). It should be noted that many proficiency testing (PT) providers require samples be reported to one-hundredths.

DOCUMENTATION:

The following must be documented in indelible ink whenever sample analysis is performed.

1. Date and time of sample collection.
2. Date and time of sample analysis to verify the 15 minute holding time is met. Alternatively, one time may be documented for collection and analysis with the notation that samples are measured *in situ* or immediately at the sample site.
3. Sample site including facility name and location, ID, etc.
4. Collector's/analyst's name or initials.
5. Meter calibration and meter calibration time(s).
6. True values of buffers used for calibration.
7. True value for the check standard buffer.
8. Value obtained for the check standard buffer (verification of ± 0.1 S.U.).
9. True value and value obtained for the post analysis calibration verification(s), where applicable.
10. Report all data values to the nearest 0.1 pH unit.
11. Traceability for chemicals, reagents, standards and consumables.
12. Instrument identification.
13. Parameter analyzed.
14. Data qualifier(s), when applicable.
15. Equipment maintenance (recommended).

Refer to *Quality Assurance Policies for Field Laboratories* (at http://portal.ncdenr.org/web/wq/lab/cert/field/policy) for additional quality assurance and quality control requirements.