NC DEQ/DWR WASTEWATER/GROUNDWATER LABORATORY CERTIFICATION

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| --- | --- | --- | --- |
| LABORATORY NAME: |  | CERT #: |  |
| PRIMARY ANALYST: |  | DATE: |  |
| NAME OF PERSON COMPLETING CHECKLIST (PRINT): |  |
| SIGNATURE OF PERSON COMPLETING CHECKLIST: |  |

Parameter: **pH**

Method: **SM 4500 H+ B-2011**

Equipment:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | pH meter (type): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  | pH buffers |  |  |
|  |  |  | Value: Exp: |  |  |
|  |  |  | Value: Exp: |  |  |
|  |  |  | Value: Exp: |  |  |

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| **PLEASE COMPLETE CHECKLIST IN INDELIBLE INK****Please mark Y, N or NA in the column labeled LAB to indicate the common lab practice** **and in the column labeled SOP to indicate whether it is addressed in the SOP.** |
|  | **GENERAL** | **LAB** | **SOP** | **EXPLANATION** |
|  | Is the SOP reviewed at least every 2 years? What is the most recent review/revision date of the SOP? [Non-field: 15A NCAC 2H .0805 (a) (7)] [Field: 15A NCAC 2H .0805 (g) (4)] |  |  | **Date:**Quality assurance, quality control, and Standard Operating Procedure documentation shall indicate the effective date of the document and be reviewed every two years and updated if changes in procedures are made.Verify proper method reference. During review notate deviations from the approved method and SOP.  |
|  | Are all revision dates and actions tracked and documented? [Non-field: 15A NCAC 2H .0805 (a) (7)] [Field: 15A NCAC 2H .0805 (g) (4)] |  |  | Each laboratory shall have a formal process to track and document review dates and any revisions made in all quality assurance, quality control and SOP documents. |
|  | Is there North Carolina data available for review? |  |  | If not, review PT data |
|  | Are the following items documented with each analysis? [Non-field:15A NCAC 2H .0805 (a) (7) (F)][Field:15A NCAC 2H .0805 (g) (2)] |  |  |  |
|  | The method or SOP |  |  |  |
|  | Laboratory identification |  |  |  |
|  | Instrument identification |  |  |  |
|  | Sample collector |  |  |  |
|  | Signature or initials of the analyst |  |  |  |
|  | Sample identification |  |  |  |
|  | Proper units of measure |  |  | S.U. |
|  | Final value to be reported |  |  |  |
|  | Facility ID or permit number [Approved Procedure for the Analysis of pH] |  |  |  |
|  | Parameter analyzed [Approved Procedure for the Analysis of pH] |  |  |  |
|  | **PRESERVATION and STORAGE** | **LAB** | **SOP** | **EXPLANATION** |
|  | Is the sample analyzed within 15 minutes of collection? [40 CFR Part 136.3, Table II and footnote 2] |  |  |  |
|  | Are date and time of sample collection documented? [Non-field: 15A NCAC 2H .0805 (a) (7) (F) (vi)] [Field: 15A NCAC 2H .0805 (g) (2) (F)] |  |  |  |
|  | Are date and time of sample analysis documented? [Non-field:15A NCAC 2H .0805 (a) (7) (F) (vii) and (viii)] [Field:15A NCAC 2H .0805 (g) (2) (G) and (H)] |  |  | One time may be documented for sample collection and analysis if there is documentation showing that the analysis is performed *in situ*, or immediately on the sample site |
|  | **PROCEDURE – Meter Calibration** | **LAB** | **SOP** | **EXPLANATION** |
|  | Is the meter calibrated daily before sample analysis? [Approved Procedure for the Analysis of pH] |  |  | Instruments are to be calibrated according to the manufacturer’s calibration procedure prior to analysis of samples each day compliance monitoring is performed. |
|  | Is meter calibration documented? [Approved Procedure for the Analysis of pH] |  |  |  |
|  | Is the time of meter calibration documented? [Approved Procedure for the Analysis of pH] |  |  |  |
|  | What pH buffers are used for meter calibration? [Approved Procedure for the Analysis of pH]**List:** |  |  | Calibration must include at least two buffers. |
|  | How is the pH probe stored when not in use? [Approved Procedure for the Analysis of pH]**Answer:** |  |  | The pH probe must be stored and operated according to manufacturer’s instructions. |
|  | **PROCEDURE – Sample Analysis** | **LAB** | **SOP** | **EXPLANATION** |
|  | Are the samples gently stirred during measurement? [Approved Procedure for the Analysis of pH] |  |  |  |
|  | Is the pH sensing portion and reference junction completely immersed? [Approved Procedure for the Analysis of pH] |  |  |  |
|  | What steps are taken to eliminate cross contamination between measurements? [Approved Procedure for the Analysis of pH]**ANSWER:** |  |  |  |
|  | Are pH values reported in tenths (0.1)? [Approved Procedure for the Analysis of pH] |  |  | The units of measure for pH analyses are Standard Units (S.U.). It is recommended that pH be read and documented 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. |
|  | How is pH reported when more than one pH concentration has been taken for a particular day? [Approved Procedure for the Analysis of pH]**ANSWER:** |  |  | If more than one pH concentration has been taken for a particular day, these values cannot be averaged due to the logarithmic nature of pH concentration. All values must be reported on the eDMR, either in the daily cell or the comments section. The following convention must be followed when deciding which value to report in the daily cell:* Any value in violation of permit limits must be reported in the daily cell. If multiple samples yielded noncompliant results, the most extreme noncompliant value must be reported in the daily cell.
* If all values taken during the day were compliant with the permit limits, the value closest to the bounds of the limit range (high or low) must be reported in the daily cell.
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|  | **QUALITY ASSURANCE** | **LAB** | **SOP** | **EXPLANATION** |
|  | Is a check standard buffer analyzed after meter calibration, before sample analysis? [Approved Procedure for the Analysis of pH] |  |  |  |
|  | What is the true value of the check standard buffer? [Approved Procedure for the Analysis of pH]**ANSWER:** |  |  |  |
|  | Is the acceptance criterion for the check standard buffer ±0.1 S.U. of true value? [Approved Procedure for the Analysis of pH] |  |  |  |
|  | What corrective action is taken if the check buffer does not meet the acceptance criterion?**ANSWER:** |  |  | Check again with a freshly poured buffer. If the buffer still does not meet the criterion, recalibrate the instrument. |
|  | If samples are analyzed at multiple sites, is a post-analysis check standard buffer analyzed following the last sample? [Approved Procedure for the Analysis of pH] |  |  |  |
|  | Is the acceptance criterion for the post-analysis check standard buffer ±0.1 S.U. of true value? [Approved Procedure for the Analysis of pH] |  |  |  |
|  | What corrective action is taken if the post-analysis check buffer does not meet the acceptance criterion? [Approved Procedure for the Analysis of pH]ANSWER: |  |  | Check again with a freshly poured buffer. If the buffer still does not meet the criterion, recalibrate the instrument. |

Additional Comments:

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Inspector: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_