

NC DEQ/DWR WASTEWATER/GROUNDWATER LABORATORY CERTIFICATION BRANCH

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

**Parameter: Vector Attraction Reduction**

Method: Option 7: Moisture Reduction of Sewage Sludge Containing No Unstabilized Solids [40 CFR 503.33(b)(7)]  
 Pathogens and Vector Attraction in Sewage Sludge EPA/600/R-22/194

Equipment:

|  |   |                                       |
|--|---|---------------------------------------|
| Analytical balance, capable of weighing to 10 mg | Desiccator, provided with a desiccant containing a color indicator of moisture concentration or an instrumental indicator | Evaporating dishes of 100-mL capacity |
| Drying oven, for operation at 103 to 105°C       |   |                                       |

**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                        |   | L<br>A<br>B | S<br>O<br>P | EXPLANATION   |
|--------------------------------|---|-------------|-------------|---|
| 1                              | Is the SOP reviewed at least every 2 years? What is the most recent review/revision date of the SOP? [15A NCAC 02H .0805 (a) (7)]<br><br><b>DATE:</b>             |             |             | 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.<br>Verify proper method reference. During review notate deviations from the approved method and SOP.  |
| 2                              | Are all review/revision dates and procedural edits tracked and documented? [15A NCAC 02H .0805 (a) (7)]   |             |             | 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.  |
| 3                              | Is there North Carolina data available for review?  |             |             | If not, review PT data  |
| PROCEDURE – Sample Preparation |   | L<br>A<br>B | S<br>O<br>P | EXPLANATION   |
| 4                              | Are clean evaporating dishes heated at 103-105°C for at least 1 hour in an oven? [SM 2540 G-2015 (3) (a) (1)]   |             |             |   |
| 5                              | Are heated dishes then cooled to ambient temperature, weighed, and stored in a desiccator until needed? [SM 2540 G-2015 (3) (a) (1)]                              |             |             |   |
| PROCEDURE – Sample Analysis    |   | L<br>A<br>B | S<br>O<br>P | EXPLANATION   |
| 6                              | Do samples qualify to be analyzed according to Option 7? [Pathogens and Vector Attraction in Sewage Sludge, EPA/600/R-22/194, (January 2023) (9.9) and Table 9.2] |             |             | Sewage sludges treated by an aerobic or anaerobic process (i.e., sewage sludges that do not contain unstabilized solids generated in primary wastewater treatment).<br><br>It is important that the sewage sludge not contain unstabilized solids because the partially degraded food scraps likely to be present in such a sewage sludge could attract birds, some mammals, and possibly insects, even if the solids content of the sewage sludge exceeds 75%. |
| 7                              | How are samples collected? [Pathogens and Vector Attraction in Sewage Sludge, EPA/600/R-22/194, (January 2023) (10.9)]<br><br><b>ANSWER:</b>                      |             |             |   |

|    |  |                      |                      |  |
|----|--|----------------------|----------------------|--|
| 8  | How is the sample homogenized? [SM 2540 G-2015 (3) (a) (2) (b)]<br><b>ANSWER:</b>  |                      |                      | Solid samples: If sample consists of discrete pieces of solid material (e.g., dewatered sludge), then take care to obtain a representative sample whose particle size will not impede drying.<br>Manually process samples as quickly as possible to prevent moisture loss. Processing via mechanical grinding is not recommended because moisture levels could drop during processing. |
| 9  | Is 25 to 50 grams of homogenized sample placed in a prepared evaporating dish and weighed? [SM 2540 G-2015 (3) (a) (2) (b)]  |                      |                      |  |
| 10 | Are samples dried in an oven at 103 to 105°C for ≥ 1 h? [SM 2540 G-2015 (3) (a) (2) (b)]   |                      |                      |  |
| 11 | Are samples cooled to ambient temperature in a desiccator and weighed? [SM 2540 G-2015 (3) (a) (2) (b)]  |                      |                      |  |
| 12 | Is the heating, cooling, desiccating, and weighing procedure repeated until the weight change is < 50 mg.? [SM 2540 G-2015 (3) (a) (2) (b)]                                    |                      |                      | Repeat cycle (drying, cooling, desiccating, and weighing) until weight change is <50mg.<br><b>DRYING STUDIES ARE NOT ALLOWED.</b>  |
| 13 | How are the % Total Solids calculated? [SM 2540 G-2015 (4)]  |                      |                      | $\frac{(A-B) \times 100}{C-B} = \% \text{ Total Solids}$<br>Where:<br>A = final weight of dried residue + dish, mg<br>B = weight of dish, mg<br>C = weight of wet sample + dish, mg  |
| 14 | Is the percent of total solids ≥75%? [Pathogens and Vector Attraction in Sewage Sludge, EPA/600/R-22/194, (January 2023) (9.9)]  |                      |                      |  |
|    | <b>QUALITY ASSURANCE</b>   | <b>L<br/>A<br/>B</b> | <b>S<br/>O<br/>P</b> | <b>EXPLANATION</b>   |
| 15 | Are duplicates analyzed at a frequency of ≥5% of a batch of ≤20 samples each day? [SM 2540 A-2015 (5)]   |                      |                      | Analyze ≥5% of all samples in duplicate or at least one duplicate sample with each batch of ≤20 samples  |
| 16 | What is the acceptance criterion for duplicates? [15A NCAC 02H .0805 (a) (7) (A)]<br><b>ANSWER:</b>  |                      |                      | SM 2540 A-2015 (5) states: Typically, the relative percent difference (RPD) of duplicates should not exceed 10%, but RPDs may vary considerably due to sample matrix and concentration.<br><br>This is not required, and the acceptance criterion is to be set by the laboratory.  |
| 17 | What corrective action does the laboratory take if the duplicate samples results are outside of established control limits? [15A NCAC 02H .0805 (a) (7) (B)]<br><b>ANSWER:</b> |                      |                      | If quality control results fall outside established limits or show an analytical problem, the laboratory shall identify the Root Cause of the failure. The problem shall be resolved through corrective action, the corrective action process documented, and any samples involved shall be reanalyzed, if possible.   |
| 18 | Is the data qualified on the EPA Biosolids Annual Report (NPDES Form 6100-035) or client report if Quality Control (QC) requirement are not met? [15A NCAC 02H .0805 (e) (5)]  |                      |                      | Reported data associated with quality control failures, improper sample collection, holding time exceedances, or improper preservation shall be qualified as such.   |

Additional Comments:

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Inspector: \_\_\_\_\_ Date: \_\_\_\_\_