NR 149 UPDATES for Registered Labs BASE 4 tests

May 2021 DNR.WI.GOV
“New” NR 149

Published March 2021

IMPLEMENTED by September 1, 2021

This presentation is for registered laboratories that analyze TSS, BOD, NH$_3$, TP
**Removed** (no longer needed - these are OUT)

- Don’t need certificates displayed
- Cap on technology fees is removed (allows for some savings for WWTPs)
- Chain of custody (COC) references have been removed
- Since the methods dictate QC requirements, matrix spikes, duplicates, replicates, and QCS were removed from NR 149
Removed (no longer needed - these are OUT)

Quality Manual – these details are no longer required:
- Organization and management structure
- List of major analytical instruments and support equipment
- Procedures for reviewing analytical data and reporting results

SOPs – these details are no longer required:
- Analytes
- Applicable matrices
- Method sensitivity
Removed (no longer needed - these are OUT)

- Don’t need 2 weights to check balances monthly, now only need 1 weight.
- Do not need to perform a carboy blank.
- Do not need to calibrate annually just because a year is up.
- Do not need to document the date of receipt for standards and reagents.
- Do not need to assign an expiration date when one is not provided by the vendor.
PT Updates

DUE DATE IS AUGUST 31 ... get 16 more days

Need to report the correct / proper method code.

If the method code is not correct, that counts as a FAIL...

...which means you’ll need a NEW PT.
### PT Method Code Info (3/17/21)

<table>
<thead>
<tr>
<th>BOD Method</th>
<th>Code</th>
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# PT Method Code Info (3/17/21)

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<th>Phosphorus Method</th>
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PT Updates

Repeating...Repeating... PT failures for renewal

If there are 3 water pollution (WP) PTs in a row that did not pass, that means you need to pass 2 PTs that are...

- 2 passes in a ROW
- Different WP studies
- 10 days apart
- Not run in the same batch
**Calibration Curves**

Calibration curves do **NOT** need to be done annually.

Factory calibrations (still) **NOT** acceptable for accredited tests for compliance.

Will need a new calibration curve if the CCV fails.
Ion Selective Electrode (ISE) Calibration (added)

Calibrate **DAILY** – applies to all ISE: BOD, NH$_3$, & pH

NEED **3** calibration standards for ISE (*except for BOD, pH*)

NEED a **2nd** source initial calibration verification (**ICV**) standard (*except for BOD, pH*)
LOD and LOQ Updates

Limit of Detection (LOD) – determined by “new” procedure

Limit of Quantitation (LOQ)

The LOQ shall be equal to 10/3 x LOD or set to the lowest concentration standard in your curve.
Reporting Limit (RL) Updates

Reporting Limits (RL) – applies to BOD and TSS

The BOD RL is equal to 2 mg/L if a 300 mL sample was run.

The TSS RL is equal to 2 mg/L if a 500 mL sample was run (RL = 1000/sample volume in mL).
Method Blanks

Method Blank (MB) – *not required for pH or TSS*

One per batch up to 20 samples. If 21 samples, need 2 MBs.

A method blank may **not** be used to zero the instrument for colorimetric technologies.
Lab Control Sample (LCS)

One per batch up to 20 samples. If 21 samples, need 2 LCSs.

IF the LCS is also = the CCV (LCS/CCV), need to meet the CCV limits.
Corrective Action:

Root cause analysis shall be performed when there is recurrence.

At times, all labs may experience repeating issues.

2 PTs in a row fail?
GGAs repeatedly fail each spring?
Oven can’t keep temperature?
Quality Systems

SOPs

Include both **preparation** and analysis procedures.

Include potential interference/s and how they are **treated**.

*Not this kind of interference...*
Quality Systems

Labeling bottles — Reagent and standard containers shall be labeled with: expiration date, chemical name, and concentration.

Weights — Just need 1 weight, but it needs to be the correct class. For analytical balances, typically, ASTM class 2 or better is needed.
**Colorimetric TP and NH$_3$**

Initial calibration (curve): when using calibration blanks, be sure to use the measured response (it is NOT always = “0” just because it is a blank).

TP Digestion with hotblock using closed vials: heat @ 150 +/- 2ºC for at least 30 min.

Do not dilute samples after adding color reagent.
TSS

Use wide bore pipets

*don’t* use Buchner funnels

*don’t* use Gooch crucibles
BOD, cBOD

Maintain room at 17 to 23 °C.

Use the theoretical saturation point.

Calibrate meter at or near oxygen saturation point...

...based on temperature and barometric pressure, on each day of analysis, to assess supersaturation (note – take these measurements from the DO meter).

Assess (and treat) supersaturation each day of analysis.

Use samples volumes to expect 2 mg/L depletion.
Technology – BOD, CBOD

• Optical DO probes – calibrate each day
• Barometric pressure – local, not adjusted to sea level
• Chlorine strips must test down to 0.1 mg/L
• Wide bore pipets or tips
• GGA – no averaging (each must pass or qualify the data)
• Method blanks – no averaging (each must pass or qualify the data)
• Seed samples that have been disinfected or inhibited
• Do NOT add inhibitor to GGA, method blanks, or seed material