

Policy for determining relevant lab experience

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BACKGROUND:

In order for an operator to upgrade their certification level from Operator-in-training to Basic in the Laboratory subclass, an operator must provide documentation of one or more years of experience in the subclass.

Frequently, documented lab experience is from operators who routinely perform lab testing *only* on weekends. Weekend lab testing typically includes obtaining final weights for total suspended solids (TSS) analysis and making final dissolved oxygen (DO) measurements on BOD samples. Unfortunately, these tasks do not adequately translate to the typical activities associated with laboratory testing.

RESOLUTION:

First, laboratory subclass experience must be gained while working in a laboratory accredited by the WDNR's Laboratory Certification Program. The common wastewater tests for which accreditation is required are BOD (cBOD), ammonia, total phosphorus, and suspended solids (TSS). Experience must be in performing at least 2 of these 4 tests, unless the facility performs just one certified test within its laboratory.

Experience that is relevant:

BOD/cBOD

- Experience in calibrating a DO meter.
- Experience with preparation of dilution water.
- Experience with QC samples, including blanks seed controls, and lab control standards (LCS...or GGA).
- Experience with calculating results.

TSS

- Experience in verifying and documenting the calibration of a balance.
- Experience in not only performing final weight determinations but prepping filters, performing the filtration, handling the filters, and calculating results.

Ammonia by ISE

- Experience in calibrating ion selective electrode (ISE) meters.
- Experience in preparing standards and LCS.
- Experience with QC samples, including blanks and lab control standards (LCS...or GGA).
- Experience with calculating results.

Ammonia/Phosphorus by Colorimetry

- Experience in zeroing and calibrating a spectrophotometer.
- Experience in preparing standards and LCS.
- Experience with QC samples, including blanks and lab control standards (LCS...or GGA)
- Experience with calculating results.

Experience that is NOT relevant:

- Dissolved Oxygen (DO) is used for BOD, but DO measurement and the bioassay that is BOD are very different. For DO, a Horiba or YSI field probe is often used rather than calibrating a meter and checking it against saturation. The real trick of BOD and cBOD, of course, is the ability to get acceptable results on blanks and LCS (GGA standards). You do not get that with simple DO measurement.
- Settleable solids is also quite different than TSS. Except for settleable solids, which is more of a timed visual test, all solids testing requires the use of an analytical balance. This is a critical distinction as one needs to understand how to verify the calibration of an analytical balance.
- pH is used as part of many analyses, but it is more of a tangential parameter, and the need for certification is exempted in NR 219.
- Chlorine testing is yet another test often listed on experience forms. Like pH, accreditation is not required to perform chlorine testing. And like DO, chlorine measurement is typically made using a field colorimeter which is not calibrated under the rigorous standards of ch. NR 149, Wis. Admin. Code.
- Orthophosphate is also quickly becoming a parameter used in process control. A facility can gather data on both total and ortho phosphorus on its samples and develop a correlation between the two. Then the rapid orthophosphate test can be used to estimate total phosphorus. Unfortunately, like residual chlorine, orthophosphate is typically measured using a field colorimeter and a pre-programmed internal calibration. In addition, the critical digestion step is not required, so the operator would not have experience in that aspect of the analysis.

APPROVAL:



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