

DOW Laboratory Certification Program Technical Assistance – 2015

Presentation to:

KWWOA

April 15, 2015

**Department for Environmental Protection
Energy & Environment Cabinet**



To Protect and Enhance Kentucky's Environment

Kentucky
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Topics

Kentucky Laboratory Certification Program Technical Assistance

Drinking Water and Wastewater Laboratories

Drinking Water

Laboratory Certification Webpages

- Drinking Water Webpage
 - List of certified laboratories
 - Announcements
 - Essentials
 - Application Reference Documents
 - Technical Assistance Documents

<http://water.ky.gov/DrinkingWater/Pages/CertifiedLaboratories.aspx>

Drinking Water Essentials

- Application package – 2015
- Approved method-analyte list
- Analyte list CHEM template – 2015
- Analyte list MICRO template – 2015
- Demonstration of Capability Worksheet
- Control Chart Worksheet - beta
- Calibration/Quality Control Worksheet - beta

DW Technical Assistance Docs

- Kentucky Minimum Reporting Limit (MRL)
- KY Approved EPA Compliant Methods
- Laboratory Accountability BARF Notice Guidance
- Statement on Enforcement of EPA Manual
- Hyperlink - EPA's Drinking Water Laboratory Certification Webpage
- 40 CFR 141 (eCFR)

DW Technical Assistance Docs-2

- DW Microbiology Analyst Approval Requirements
- DW Microbiology Laboratory Startup Requirements
- Micro PAQ (Rev 2014)

DW EPA Compliant Methods

- EPA compliant methods (Hach, IDEXX, etc) that are EPA/KY approved for drinking water compliance samples.
- Complete list of compliant methods are on the Kentucky Drinking Water Webpage
- Signed EPA Alternate Test Procedure (ATP) letter must be maintained by the laboratory

Microbiology Analyst Approval

- 30 days of training under the direct supervision of a DOW approved analyst
- Additional 60 days of bench experience, with final review oversight, in a microbiology laboratory (or equivalent)
- Successful drinking water proficiency test (PT) for all methods the laboratory will be using
- Drinking water microbiology formal workshop and/or structured training program attended

Wastewater

Laboratory Certification Webpages

- Wastewater Webpage
 - Announcements
 - Application Essentials
 - Templates
 - Application Reference Documents
 - Technical Assistance Documents
 - Presentations

<http://water.ky.gov/permitting/Pages/WasteWaterCertification.aspx>

WW Application Essentials

- KWLCP Application Form
- DOC Worksheet
- WWLC Application Decision Tree
- WW Field-only Method-Analyte List
- WW Method-Analyte List Template

WW Technical Assistance Docs

- Method Update Rule (MUR) – 2012
- Summary of EPA Draft QAPP Requirements (CIO 2106_S-02)
- KY Approved EPA Compliant Methods
- ATP Application Required Documents
- ATP Method Requirements
- Requirements for Laboratories Requesting EPA Method Modification Approval

WW Technical Assistance Docs-2

- Total Nitrogen Methodology Options
- DOC Procedure
- Objective of the QAP
- KPDES RRL & ARRL Method-Analyte List
- KWLCP Sufficiently Sensitive Summary

WW EPA Compliant Methods

- EPA compliant methods (Hach, IDEXX, etc) that are EPA/KY approved for wastewater compliance samples.
- Complete list of compliant methods are on the Kentucky Wastewater Webpage
- Signed EPA Alternate Test Procedure (ATP) letter must be maintained by the laboratory

[KY Approved EPA Compliant Methods.xls](#)

ATP Limited Use Required Docs

- A request letter on company letterhead must be submitted with method-analyte information
- Comparison table provided by ATP developer
- Justification for using testing procedures other than those specified in 40CFR 136.3, or in the NPDES permit
- DOC (IDC/MDL); PT Study; Method SOP

ATP Requirements – Nationwide Use

- Follow the procedure specified in the most recent publication of 40 CFR 136.4 completely
- Maintain all records associated with the preparation of the Alternate Test Procedure
- Notify the Kentucky Laboratory Certification Program that an Alternate Test Procedure for nationwide use has been submitted to EPA by your laboratory
- Once approved, laboratory may utilize the modified method for wastewater compliance sample analysis. Maintain copy of the ATP approval letter for duration of use

ATP Requirements – Limited Use

- Follow the procedure specified in the most recent publication of 40 CFR 136.5 completely
- Maintain all records associated with the preparation of the Alternate Test Procedure (ATP)
- Submit application for Alternate Test Procedure for limited use to Kentucky Laboratory Certification Program (KLCP). KLCP will review and submit to EPA Region 4
- Once approved, laboratory may utilize the modified method for wastewater compliance sample analysis. Maintain copy of the ATP approval letter for duration of use

Method Modification

- Side by side comparison of the modified method capable of yielding reliable data
- Method Detection Limit (MDL)
- Initial Demonstration of Capability (IDC)
- Successful Performance Test Study
- Standard Operating Procedure (SOP)

Total Nitrogen Method Options

$$[\text{Nitrogen}_{\text{total}}] = [\text{TKN}] + [\text{NO}_3^-] + [\text{NO}_2^-]$$

1. Analyze TKN, nitrate and nitrite using EPA and KY approved wastewater methods
2. Analyze TKN, nitrate-nitrite using EPA and KY approved wastewater methods
3. Utilize Hach Method TNT plus 880
 - a) S-TKN (Hach Method 10242)
 - b) NO₂ / NO₃ (Hach Method 10206)
 - c) Total Nitrogen (Hach Method 10242)

Sufficiently Sensitive Methodology

- The method minimum level [Kentucky defined as minimum reporting level - MRL] is at or below the level of the applicable water quality criterion or permit limitation for the measured pollutant or pollutant parameter; or
- In the case of permit applications, the method minimum level [MRL] is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or
- The method has the lowest minimum level [i.e. MRL] of the EPA-approved analytical methods.

Sufficiently Sensitive - Nutshell

- $MRL \leq RRL$ (70% of the WQS)
- $MRL \leq ARRL$
- $RRL(\text{or } ARRL) \leq MSRL$ (approved by DOW)
- Where:
 - MRL = minimum reporting limit
 - ARRL = alternate required reporting limit
 - MSRL = matrix specific reporting limit

Excel Worksheets

DOC Worksheet

Calculates IDC/ODC & MDL

Graphs Linear Calibration & Calculates RLS

KY DOW Calculator

Control Chart Worksheet

Creates Control Charts

for up to 130 Data Points

(using 5 to 20 points to establish criteria)

[Control Chart Template.xlsx](#)

Calibration & QC Worksheet

Initial Calibration Curve and
Associated Quality Control Parameters
(for up to 12 methods or analytes)

[Linear Calibration with QC.xlsx](#)

Questions

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