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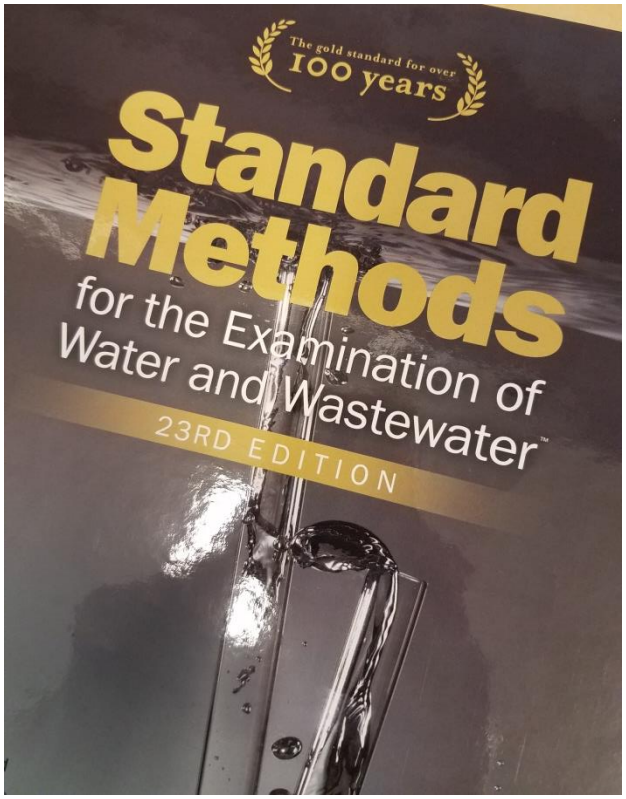
# Standard Methods: 23rd Edition and Beyond



# New Faces (and some old ones)!

# Who Are the Players?

**SM Manager (resource for questions)**

Nathan Erdman

**Editor**

**(can we write in English?)**

Laura Bridgewater

# Looking to Fill Voids Left by "Promotions" and Retirements

- **1000 – Quality Assurance**
  - Needs updating to be more consistent with TNI guidance; a lot of work on method validation approach based on requests from CWA and ODW groups
- **2000 – Physical Methods**
  - Terry Baxter used to do this section, but moved up to JEB
- **4000 – Inorganics**
  - William Lipps used to do this section, but moved up to JEB

# What's New in the "23rd" and Beyond?

- FYI - CWA new MUR split into two parts (easy and hard). Lots of SM 23rd methods proposed for "easy" MUR, but because things in EPA move slower not clear when that will be.

- FYI – DW Expedited methods Rule with SM 23rd methods in winter or spring (everything is slower now)

# What's New in the "23rd" and Beyond? 1000-2000

- **1000:**
  - Nothing new in 23rd, but working on creating a summary table for 1030 and 1040 that will make it easier to interpret. Then look at what is needed for better harmonization across parts.
- **2000:**
  - QC (2020) was updated
  - CaCO3 saturation (2320) updated
  - New odor method (2150C) added
  - Significant changes to solids (2540C) to add flexibility; still some issues to resolve so work in progress

# What's New in the "23rd" and Beyond? 3000-4000

- **3000:**
  - Updated 3020 (QC)
  - Nothing else new in 23rd
  - Looking at clean sampling techniques

- **4000:**
  - Updated 4020 (QC)
  - CN (4500-CN) section re matrix spikes.
  - Nitrate methods revised.
  - Added Nitrate discrete method for enzyme reduction.
  - DO (4500-O) by luminescence

# What's New in the "23rd" and Beyond? 5000-6000

- **5000:**
  - Updated 5020 (QC)
  - Updated BOD-5210B (this will always be a work in progress); mainly clarifications; rolled back info re blanks
  - TOC 5310 C significant rewrite to clarify and simplify
  - UV 5910 - Clarifications

- **6000**
  - No changes

# What's New in the "23rd" and Beyond? 7000-8000

- **7000:**
  - Updated 7010 and 7020 (QC)
  - Added new Gross alpha/beta by scintillation (7110)

- **8000:**
  - Updated 8020 (QC).
  - Lots of other individual updates (luminescence, macroalgae, ciliated protozoa, annelids, mollusks, daphnia, fish, minnows)

# What's New in the "23rd" and Beyond? 9000-10000

- **9000:**
  - Updated 9020 (QC)
  - Updated Apparatus (9030), culture media (9050)
  - Stressed micro-organisms (9213), HPC (9215)
  - Coliform (9221, 9222, 9223)
  - Enterococcus (9230) and Fungi (9610)

- **10000:**
  - New photos for 10900!

# What is SM working on Now? Lots!

- More work on turbidity as some instruments get discontinued
- Clean sampling techniques for metals
- Selenium speciation updates
- Update Silica method to be consistent with Hach protocol
- Add TN method
- Add PAA method
- Several gas diffusion CN methods

# But Wait… There's More….

- PAH by SIM
- PFAS???
- AOC method (AWWSC) and move AOC to 5000
- Looking at how to handle test kits which have become more prevalent
- Microplastics?
- Carboxylic acids?
- BDOC?

# Most Important???

- The Website will be completely revamped shortly
  - Improves search
  - Improves readability
  - Much easier downloads (but still not free..)

- May come as early as this fall.

# What About QC and 40 CFR136?

- SM discussed in detail with Lem Walker.
- Next MUR will include a footnote indicating that the QC protocols from the latest version should be used, regardless of the version of the method being referenced.
- Remember, QC sections are free!

# LETS TALK A BIT ABOUT VALIDATION

# Standard Methods Axioms

- Most of the methods are “tried and true” and either turned into EPA methods or came from EPA methods.
  - That does not mean however that all the “validation data” are present.
- There are “new” methods that do get added to Standard Methods and we have to have guidelines for determining that those methods are acceptable.

# Two Types of New Additions

- Newer or different technologies designed to provide equivalent results to existing methods in the book.
  - Nitrate
  - TOC
- New analytes altogether
  - PPCPs

# Modifications to Existing Methods

- Even if a method has been in the book for "generations", it doesn't mean there are not errors that can creep in (or were there to begin with) or suggestions for improvements.

- Modifications must still be demonstrated to be effective, and from time to time the data in the method may need to be revisited **(e.g. low level amperometric method for chlorine – 4500Cl-E)**

# What About New Methods Being Proposed – Particularly by Vendors

- Standard Methods is not intended to be a backdoor way for manufacturers to gain credibility for new instruments.

- Thus many years ago we developed some general guidelines for evaluation of new methods/semi-proprietary techniques.

# Basic Criteria for New Methods – Especially Relevant for Vendors

- The proposed method must have appeared in a peer-reviewed journal (not to include conference proceedings) **or** be based upon peer-reviewed technology.
- The proposed method must provide **comparative data with an approved method** if there is a current method for the parameter(s) of the subject method.

# Basic Criteria for New Methods – Especially Relevant for Vendors

- The proposed method must **include data on accuracy and precision** that conform to the current descriptions in Part 1000 and/or the appropriate x020 Section of *Standard Methods*.

- The proposed method must contain **acceptable quality assurance/quality control procedures** that conform as above.

# Basic Criteria for New Methods – Especially Relevant for Vendors

- Approval by other standards developing organizations (SDOs) **does not constitute grounds for inclusion** in *Standard Methods,* but may be considered by the Joint Editorial Board (JEB) as an acceptable alternative to publication in peer reviewed literature.

- Any method submitted for inclusion in *Standard Methods* must **first be reviewed and approved by the Joint Task Group (JTG)** for that section, and then approved by the **Part Coordinator and the JEB** per current *Standard Methods* procedures.

# Basic Criteria for New Methods – Especially Relevant for Vendors

- The representative of a commercial manufacturer who has submitted a method for consideration may serve on the JTG, but not as the chair; said JTG must have a majority of members that are not employees of the submitting company.

- *Standard Methods* does not typically endorse or adopt methods that use proprietary chemicals or devices for which technical knowledge regarding safety, health, technical basis for performance and similar information is not known.

# Basic Criteria for New Methods – Especially Relevant for Vendors

- **Proprietary methods may be considered for unique applications, at the discretion of the JEB, if they fill a necessary demand in some specific application, such as rapid field methods, inline or instream testing, or high priority pollutants for which otherwise satisfactory methods are not available.**

# Applying These Criteria to Different Methods

| Criterion | 6810 | 5310E-inprocess | 4500CL-E |
|---|---|---|---|
| analytes | PPCPs | TOC | chlorine residual |
| type | new | equivalent | legacy method |
| peer reviewed method | ☑ | TBD | ☑ |
| peer reviewed technology | ☑ | ☑ | ☑ |
| comparative data | ☑ | TBD | ?? |
| P&A data as per 020 sections | ☑ | ☑ | ?? |
| contains QA/QC | ☑ | ☑ | ☑ |
| Approved by others already? | WaterRF | no | ☑ |
| JTG/PC/JEB approval | ☑ | TBD | ☑ |
| no manufacturer as chair | ☑ | member | ☑ |
| proprietary? | No | Yes | No |
| Urgent need? | Yes | No | Yes |

# What are the Issues with Each of These Methods?

| 6810-PPCPs | 5310E – TOC Supercritical oxidation | 4500-CL-E Amperometric Titration |
|---|---|---|
| 22nd edition new method; multi lab validation; LCMRL determinations | manufacturer new method; study plan reviewed by JEB/PC | Question about reliability of MDL in method; need to re-evaluate |

# 4500Cl-E

- The method has a 10 ppb detection level listed, but it is such an old method that the validation data are difficult to track down, but ostensibly came from Hach originally.
- Labs using the method in NJ are unable to get down to a 10 ppb MDL, but changing that to 20 ppb (achievable) is a technical change, so we need data.
- NJ will have multiple labs do MDL determinations and submit to SM for review.

# Conclusions

- Lots of new things either already in the latest edition or in process.
- One size does not fit all when it comes to method validation for Standard Methods.
- Having a large number of legacy methods can be challenging. The newer a method, the more likely it is to have some pretty good validation.
- It’s always a work in progress.

# Any Questions?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**Standard Methods JEB - Retired**

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