Clean Water Act Methods

Overview of EPA's CWA Method Activities

August 2018• Adrian Hanley, U.S. EPA

CWA Analytical Methods Program

- Many industries and municipalities are permitted to discharge pollutants under the CWA NPDES
- They use analytical methods to analyze the chemical, physical, and biological components of wastewater and other environmental samples for monitoring compliance
- CWA requires EPA, through rulemaking, to establish test procedures to measure pollutants for CWA programs
- EPA promulgates test procedures in 40 CFR Part 136



Method Update Rule (MUR)

- 2017 Clean Water Act Methods Update Rule for the Analysis of Effluent
  - Proposed February 19, 2015
  - 175 sets of comments received
  - Final rule published August 28, 2017
  - Effective September 27, 2017

  https://www.epa.gov/cwa-methods/methods-update-rule-2017

2017 MUR Summary

- Proposed ~100 method revisions from ASTM International and Standard Methods
- 6 Alternate Test Procedures (ATPs)
- 1 USGS Method (based off of an ATP)
- Whole Effluent Toxicity Manual Erratta
- Revisions to Methods 608, 624, and 625
- Method Detection Limit (MDL) Revision

Future MURs

- Plan to propose and finalize Method Update Rules more frequently
  - Smaller rules
  - Less wait time for revisions, ATPs, corrections
- A “Routine MUR” every 1-2 years
- Routine MURs will contain non-controversial items
- Non-routine MURs will contain more contentious items and be proposed separately and less frequently

2018 Routine MUR

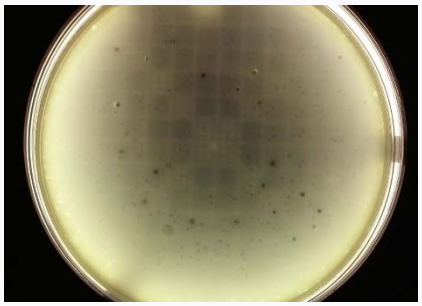
- Next routine MUR proposal - late 2018
- Will include
  - Voluntary Consensus Standard Body (VCSB) method revisions and submittals
  - Alternate Test Procedures (ATPs)
  - Corrections and clarifications
- Data was due May 30th

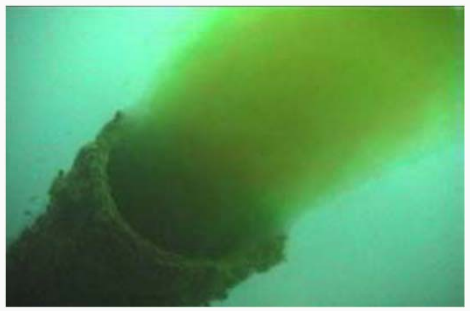
https://www.epa.gov/cwa-methods/methods-update-rule-2018

CWA Microbiology Method Activities

- Coliphage culture methods
  - Male-specific and somatic coliphage
  - Validated in recreational waters and wastewater
  - Methods and study report finalized
  - Anticipate web posting soon

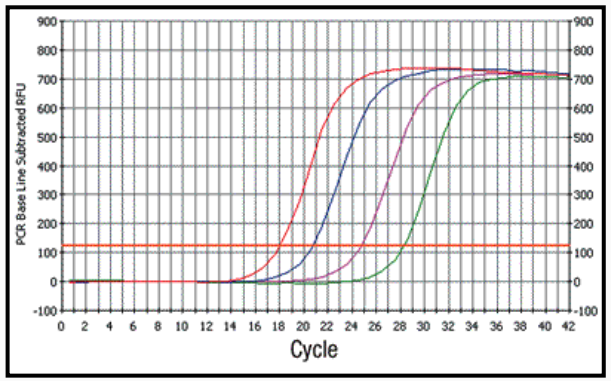
  https://www.epa.gov/cwa-methods





CWA Microbiology Method Activities

- Microbial source tracking molecular methods
  - OW and ORD collaboration
  - Rapid Methods
  - Human specific targets
  - Completed multi-laboratory validation study for recreational waters (fresh and marine)
  - Methods and study report forthcoming

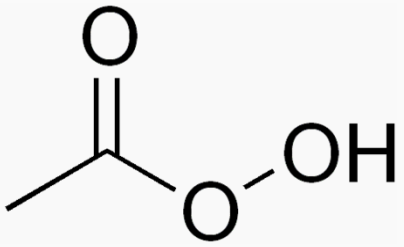


CWA Chemistry Method Activities

- Peracetic acid and hydrogen peroxide methods
- Continuous monitoring – total residual chlorine
- PCB congener method
- ATP reviews
- Update QC Criteria for Methods 608.3, 624.1, and 625.1

Peracetic Acid and H_2O_2

- Alternative antimicrobial
  - Almost no residual – unlike chlorine
  - Byproducts: hydrogen peroxide and acetic acid
  - Already in use at some POTWs
- Method must be performed onsite
  - Degrades quickly



- Halted EPA efforts after reviewing Standard Methods Draft Methods
- Currently Collaborating with the Standard Methods Joint Editorial Board
  - Multi-lab validation in progress

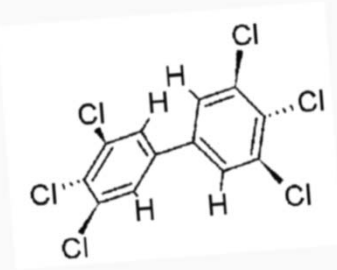
Continuous Monitoring

- Total residual chlorine pilot study
- Based on EPA Drinking Water Method 334.0
- Recruited POTWs to generate side-by-side data for monitors and an onsite lab
- One POTW currently compiling data packages
  - Next steps may include a multi-utility study

PCB Congener Method

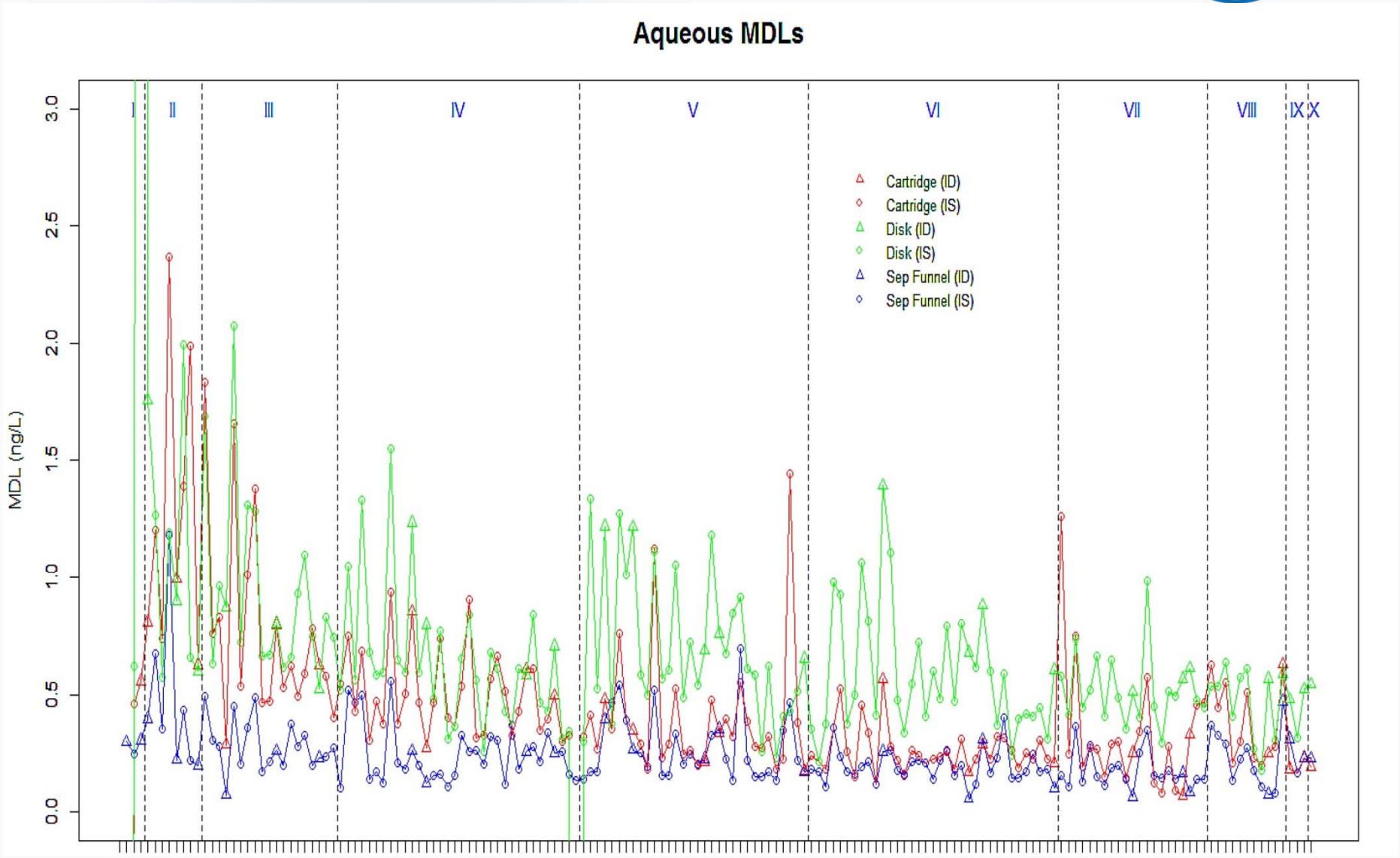
- Single-laboratory validation goals:
  - Identifies and quantifies PCB contamination using individual congeners
  - Improves sensitivity over Method 608, less sensitive to typical laboratory background
  - Implementable at a typical mid-sized full-service environmental laboratory
- Single-laboratory testing completed
- Study report finalized, draft method revised

PCB Congener Method cont.



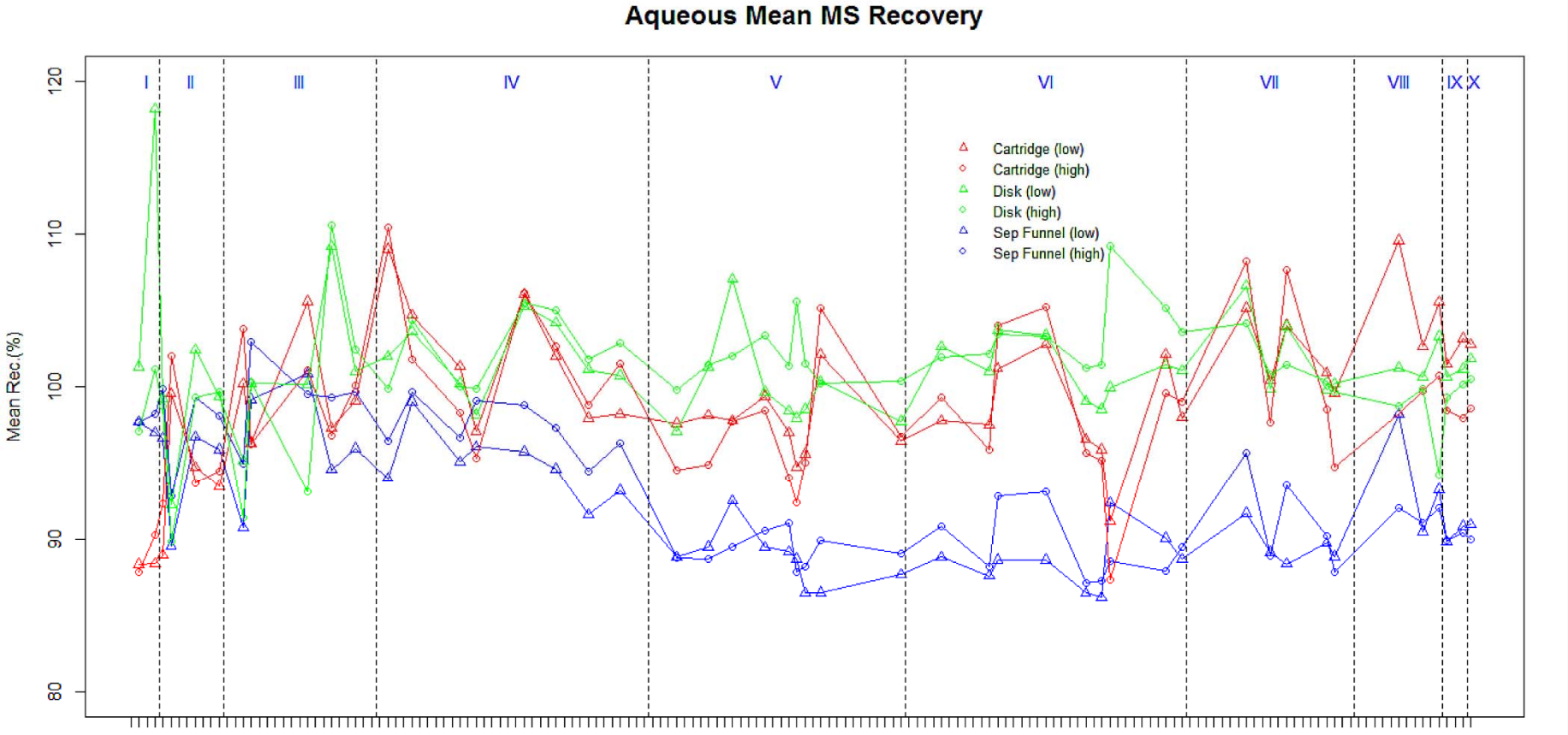
- Quantification
  - 29 carbon-13 isotope dilution standards
  - Calibration of 48 congeners
  - Other 161 congeners quantified indirectly
- Extraction
  - Tested 2 SPE procedures and 1 LLE procedure
  - Tested Soxhlet extraction for biosolids, sediment, and fish tissue
- Sensitivity
  - Aqueous MDL generally 0.2 to 1.5 ng/L (except mono chloro congeners)

Method Detection Limit Study
Aqueous Samples



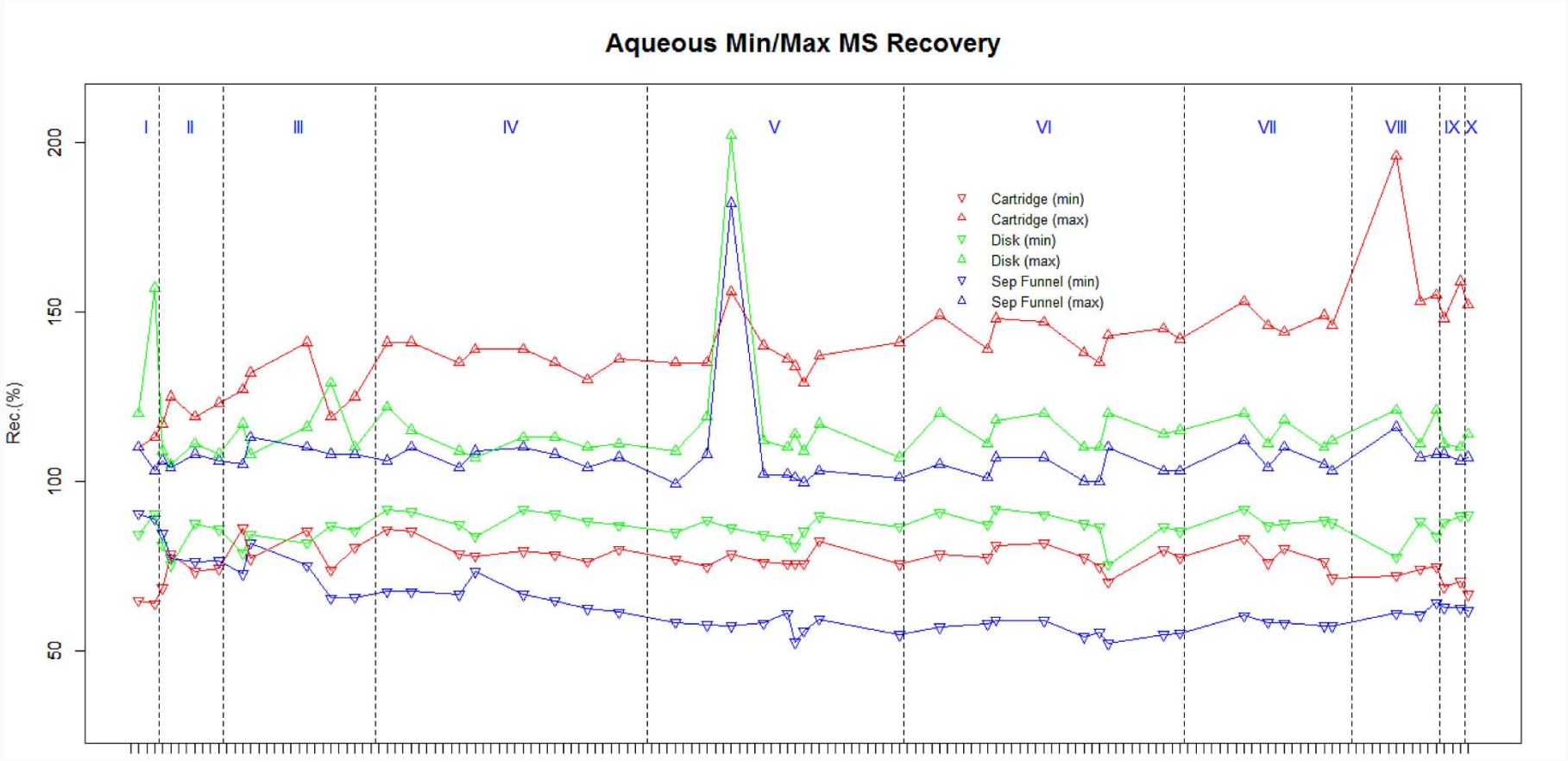
PCB Congener Method cont.

Aqueous Mean Matrix Spike Recovery



PCB Congener Method cont.

Aqueous Min/Max Matrix Spike Recovery



PCB Multi-Lab Study

- Completed QAPP and Study Plan
- Current Efforts:
  - Order mixed standards for multi-laboratory validation
  - Obtain, homogenize, and test validation matrices
  - Recruit laboratories, both contracted (paid) and volunteer

Contracting laboratories this fall!

ATP Reviews

- Alternate test procedures (ATPs) for nationwide use are submitted to EPA HQ for review
  - Codified at 40 CFR 136.4 and 136.5
- Protocols for EPA review of alternate test procedures and new methods are available at:

https://www.epa.gov/cwa-methods/alternate-test-procedures

- Deadline for 2018 MUR was May, 30 2018
- Next MUR likely 2020

608.3, 624.1, 625.1 QC Criteria Update

- TNI, ACIL, APHL, and WEF have volunteered to provide data to update QC criteria
  - Initial calibration, MDLs, calibration verification, ongoing precision and recovery, MS/MSD
- Secondary Data Collection
  - Use existing data anonymously
  - Volunteer laboratories
    - Perform NPDES compliance monitoring
    - Have an SOP and formal quality system
  - Coordinate with laboratory associations

QC Criteria Update cont.

- Schedule – FY18
  - Draft and finalize Secondary data collection QAPP and Study Plan
  - Receive external review
- Schedule – FY19 and 20
  - Review and compile data
    - EDD and supporting documentation
    - Include all data, including any that failed current QC criteria
  - Statistical Analysis
  - Draft and finalize study report
- Rulemaking to update QC criteria

Contact Information

For more information or additional feedback, please contact:

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