

Environmental Laboratory Advisory Board (ELAB)

February 2015
Crystal City, Virginia



Agenda

- Opening Remarks, Roll Call, Mission Statement and Overview of Board Goals
- Discussion/Approval of January 2015 Minutes
- Charter Highlights
- Updates From the Designated Federal Official (DFO)
- Activities Since August 2014
- Current Task Group Updates
- Open Discussion/New Items
- Review Action Items/Closing Remarks/Adjourn



ELAB Mission Statement

The Environmental Laboratory Advisory Board (ELAB) is established in compliance with the Federal Advisory Committee Act (FACA) to provide consensus advice, information and recommendations on issues related to:

- Enhancing the U.S. Environmental Protection Agency's (EPA's) measurement programs, and
- Facilitating the operation and expansion of a national environmental accreditation program.

ELAB will provide this advice, information and/or recommendations to the EPA Administrator, EPA Science Advisor, and/or Forum on Environmental Measurements (FEM).



Highlights of ELAB 2014 Activities

- Letter sent to EPA Office of Water regarding method detection limits
- Letter to EPA requesting engagement during the development of the next Method Update Rule
- Letter to EPA requesting engagement on methods harmonization



Updates From the DFO



Current Task Groups—Updates

- Interagency Data Quality Task Force/Data Quality Objective Process
- Methods Harmonization
- Acrolein and Acrylonitrile Methods
- Polychlorinated Biphenyls
- EPA Method Update Rule
- In-Line/On-Line Monitoring
- Qualification of Drinking Water Data
- Selected Ion Monitoring (early phase; no update)



Interagency Data Quality Task Force (IDQTF)/Data Quality Objective (DQO) Process



IDQTF/DQO Process

- DQO Process
 - Provides an organized matrix for approaching environmental projects
 - Planning, assessment, reassessment, adjustments
 - Requires articulation of project objectives and technical objectives
- Facilitate the involvement of laboratories in the DQO process
- Engage with IDQTF
 - Multiple agency involvement to access a broad idea spectrum and maximize cross-agency/program consensus
 - Develop an implementable approach to assure future laboratory involvement
- Follow up on ELAB letter to this Agency group

Methods Harmonization



Methods Harmonization

- 2015 initiative: Provide recommendations to EPA regarding methods that may be amenable to harmonization
- Purpose: Explore and suggest opportunities for harmonization of test method practices throughout the Agency
 - Identify 3 to 5 methods for each EPA program that may be amenable to method harmonization.
- Follow up on letter to the Agency

Methods for Consideration of Harmonization

- Method 1694 (pharmaceuticals) and Other EPA LC/MS/MS Methods
 - Harmonization Elements:
 - Confirmatory ion
 - Number of calibration standards
 - Calibration approach
 - Retention time windows
 - Identification criteria
 - Method detection limit requirements
- Methods 615/8151/515 (Herbicides)
- Ion Chromatography Methods
- Methods 415.1/9060A (Total Organic Carbon)
- Methods 9214/340.2 (Fluoride)
- Methods 200.7/6010C (Metals by ICP)
- Methods 200.8/6020A (Metals by ICP/MS)

EPA Methods Comparison

Method Number	EPA Method 537 LC/MS/MS SRM Perfluorinated Alkyl Acids in Drinking Water	EPA Method 1694 LC/MS/MS SRM Pharmaceuticals in Water, Soil, Sediment and Biosolids	EPA Method 6850 LC/MS Perchlorate in Water, Soils and Solid Wastes (Method does not include details for LC/MS/MS option)
Confirmatory Ion	No	No	Yes for LC/MS, no specifications for LC/MS/MS
Calibration	• Internal Calibration • ≥ 5 ICAL standards, forced through zero • The highest and lowest internal area response of all ICAL standards should have a RPD of $< 20\%$ • Each ICAL standard concentration calculated from curve should be within 30% of true value, except low ICAL should be within 50% • Linear or quadratic regression • CCV criteria should be within 30% or within 50% for Low standards; Surrogates should be within 30%. • Peak Symmetry should be 0.8 to 1.5	• Internal Calibration • 5 ICAL standards • Average relative response factor for isotope dilution of $\% \text{ RSD} < 20\%$ or regression analysis • Average response factor (RF) for internal standard technique $\% \text{ RSD} < 35\%$ or regression analysis • CCV criteria – Signal/Noise ratio > 10 and meets acceptance criteria specified in Table 12 of Method	• Internal Calibration • 6 ICAL standards are recommended • Linear calibration $R^2 \geq 0.995$. • Quadratic calibration $R^2 \geq 0.995$ • ICV $\pm 15\%$ • CCV every 10 Samples and before and after each batch of samples

EPA Methods Comparison

Method Number	EPA Method 537 LC/MS/MS SRM Perfluorinated Alkyl Acids in Drinking Water	EPA Method 1694 LC/MS/MS SRM Pharmaceuticals in Water, Soil, Sediment and Biosolids	EPA Method 6850 LC/MS Perchlorate in Water, Soils and Solid Wastes (Method does not include details for LC/MS/MS option)
Retention Time (R.T.) Windows	• Within a retention time window defined as ± 3 Standard Deviations of the average RT of the ICAL standards	• ± 15 seconds of Mid-level ICA	• Retention times of perchlorate and its isotope should be within 0.2 minutes
Qualitative	• RT (± 3 Standard Deviation)	• RT (± 15 seconds) • Signal/Noise ratio ≥ 2.5	• RT ± 0.2 minutes • m/z 83 to 85 ratio should be $\pm 30\%$ for LC/MS • No specs for LC/MS/MS
MDL	• DL (MDL) is optional Verification of Minimum Reporting Limit (MRL) is required (7 standards at MRL) • Lowest ICAL standard $\leq$ the MRL The Lowest Concentration MRLs (LCMRL) are in Table 5 of Method	• MDL is listed in Tables 3, 5, 7, and 9 of Method • Minimum Level of Quantitation (ML) in Tables, 3,5,7 and 9 of Method	• RL is the Lowest Level Calibration Standard

Acrolein and Acrylonitrile Methods



Acrolein and Acrylonitrile Methods

- Explore analysis requirements and pH preservation for acrolein and acrylonitrile methods
- Recommended preference of Method 624 versus Method 603
- Preservation requirement for acrolein and acrylonitrile; consideration to remove pH 4–5 preservation
- Letter to Agency and followup

Polychlorinated Biphenyls (PCBs)



PCBs

- Task Group to recommend modifications to current PCB congener analysis in wastewater
- Initial review of EPA Method 1668C with particular focus on the quality control (QC) requirements of the method
- Group has consulted with EPA for direction
- An effort to develop a simple GCMS method to analyze PCB congeners currently being planned
- Task Group will stay in contact with EPA as this effort progresses to advise the Agency when needed

EPA Method Update Rule (MUR)



EPA MUR

- Board Task Group formally requested EPA engagement on MUR development and had a constructive face-to-face meeting in August 2014
- ELAB had already provided feedback and proposed changes to several EPA methods that will be included in the forthcoming MUR
- EPA encouraged the Board to provide positive/constructive feedback once the MUR is published for comment in approximately February 2015
- EPA agreed to work with the Board on subsequent MURs and better leverage the Board's experience and expertise with various Methods
- Action: Provide comment on the MUR once it is available for public comment in the *Federal Register*

In-Line/On-Line Monitoring



In-Line/On-Line Monitoring

- Board asked to evaluate a proper procedure for insuring accuracy for in-line and on-line monitors
- ELAB actions:
 - Task Group will research applicable methods and user manuals
 - Recommend performance standards for in-line and on-line monitors
 - Recommend critical elements that should be considered by a standards development organization for in-line and on-line monitors
- Task Group will begin work in February 2015 with comments expected by July 2015

Qualification of Drinking Water Data



Qualification of Drinking Water Data

- Concerns brought to the attention of the Board by the American Council of Independent Laboratories (ACIL) and Pennsylvania Association of Accredited Environmental Laboratories (PaAAEL)
- Issue: Implementation of a policy prohibiting the reporting of *qualified* drinking water data into the Pennsylvania Department of Environmental Protection's (PaDEP) DWELR database, essentially requiring that all drinking water data be *qualification free*, which readily available information indicated cannot be technically achieved

Qualification of Drinking Water Data

- PaDEP has implemented a process for requesting to report qualified drinking water sample results
 - The document has specific examples for situations where the data **cannot** be reported, such as:
 - Unacceptable initial calibration
 - Analysis or preparation performed outside of regulated hold time
 - Inappropriate sample container(s)

Qualification of Drinking Water Data

- Matrix spike failures (assuming acceptable results for all other QC measures)
 - Inorganic Testing : Laboratory must re-prepare the matrix spike sample and analyze the re-prepared sample. If the second analysis indicates matrix interference, then the laboratory may submit the request form.
 - Organic Testing: Laboratory must verify that any surrogates and/or internal standard are within method acceptance criteria for the particular sample and matrix spike. If the surrogates, internal standards, and all other sample acceptance criteria are acceptable, then the laboratory may submit the request form.

Qualification of Drinking Water Data

- Next Step: Task Group will convene to draft a response to the ACIL and PaAAEL regarding the process to request to submit qualified data to the PaDEP

Open Discussion/New Items



Public Comments

Action Items/Closing Remarks



Thank You

Contact: Patsy Root, Chair, ELAB

Patsy-Root@idexx.com

www.EPA.gov/ELAB

207-556-8947

