

MWEA LPC 2023 Fall Workshop Abstracts

- **Title: Sampling Procedures to Ensure Defensible Data**

Presenter: Elisa Edge, KimHec

Abstract: Wastewater samples are routinely pulled for compliance and operational purposes. The sample collector is the first line of defense in ensuring the integrity and quality of the resulting data. This presentation will focus on sample collection, handling, and documentation. Discussion will include techniques for collecting a representative sample, proper preservation, and the importance of completing chain of custodies.

- **Traditional Biochemical Oxygen Demand Testing**

Presenter: Wendy Dalton, Woodard & Curran

The Biochemical Oxygen Test is often a source of frustration and confusion for operators and analysts, but it doesn't have to be. This presentation will walk step-by-step through the procedure for analyzing BOD5. Starting with representative sampling and ending with final reporting, with specific emphasis on seeding procedures and GGA analysis, we'll cover all the details of the BOD5.

- **BOD Automation**

Presenter: Nicole Miller, St. Louis MSD

"The reality is that BOD is a tough test." – Wisconsin DNR Website. Of all the inorganic analyses, BOD is among the most rigorous. It requires unfailing analytical hygiene, excellent time management, and an experienced eye interpreting the data. Yet since BOD is more challenging than other analyses, labs often struggle with analyst retention and the practical difficulty with troubleshooting that is inherent to the test. Reflecting on 36 months of automator operation and knowledge-sharing with other labs using BOD automation, this presentation will examine ways automating the BOD process can help standardize this difficult analysis, help retain institutional knowledge, and reduce analyst burn-out.

- **Laboratory Quality Control**

Presenter: David Greene, MoDNR

- Error and bias
- Statistics of measurement
- Calibration standards, check standards, reference materials
- Blanks, spikes, duplicates
- Control charts, data qualifiers
- Initial Demonstration of Capability, Method Detection Limits

Total presentation time 50 minutes.

- **PFAS**

Presenter: Dr. Jayesh Gandhi, Metrohm USA

Per- and polyfluoroalkyl substances (PFAS) are man-made “forever” chemicals used in industry and consumer products. Thousands of these chemicals exist, and exposure may cause adverse health impacts. The EPA will soon approve new guidelines on testing targeted and non-targeted PFAS compounds. Dr. Gandhi will provide background and history on PFAS chemicals and approaches to non-targeted analytical testing methods, along with a brief on his work in the development of the EPA Draft method 1621 for Adsorbable Organic Fluorine (AOF) including sample prep and analysis using combustion ion chromatography (CIC). He will share data for determining Method Detection Limit (MDL) and answer questions related to training and implementation of this method.

- **E-Coli/Fecal Coliform Testing**

Presenter: Anna Zerr, City of Fulton

The presentation will discuss the different methods to test for Fecal Coliform/E-coli. The benefits and disadvantages to each test. Where is E-Coli found? How to test for it? The goal of this presentation is to provide information on the different available tests and how easy or hard they can be completed. There will be examples of one of the tests.

- **MoDNR WPI Testing**

Presenter: Darlene Helmig, MoDNR

Darlene will share information about the Missouri Department of Natural Resources' recent transition from paper operator certification exams to computer-based exams. Individuals schedule their exam for a date and time of their choice and can choose to take an exam in-person at a test center or a remote exam. Examinees receive their exam score immediately instead of waiting for their results in the mail. This presentation will provide a status update and share some tips for a positive exam experience.

- **MWEA LPC WPI Testing**

Presenter: Rodney Spires, Hannibal BPW

The Missouri Water Environmental Association (MWEA) Lab Practices Committee (LPC) offers a Wastewater Analyst certification that is strictly volunteer and is not required by Missouri Department of Natural Resources (MDNR). It does however give a satisfaction to and your employer than you know how analyze and understand your laboratory The LPC decided a few years ago to redo our existed certification exams and make the exams pertain more to the level the exam was for. As we were reviewing the exam, we felt it was best for our committee and the individuals taking the exam that the LPC go with a company that specialize in given exams. As of July 1, 2023, the LPC decided to go with Water Professionals International and use their exams for

future wastewater analyst exams. In this presentation we will explain the steps that someone needs to take in order to take the exam and what comes after taking the exam.

- **Understanding the Whole Effluent Toxicity test**

Presenter: Joey Waitman, City of Springfield

Whole Effluent toxicity testing or (WET) is a mainstay of effluent testing across the nation. Due to the holistic nature of the test, facilities can determine if the effluent they are generating will be toxic when released into an environment containing aquatic organisms by measuring the response, if any, that the effluent has on the organisms. At the Southwest Wastewater Treatment Plant of Springfield, Missouri (SWTP), we perform a yearly WET test on our effluent in tandem with the effluents from our NW treatment facility. In addition, we complete a yearly DMR-QA for WET testing for analytical methodology verification. The SWTP is required by our NPDES permit to perform at least one WET test a year (2 Acute, 2 Chronic over 4-year period) to remain in compliance. In this presentation we will learn about the two main types of WET testing with an emphasis on Acute WET test methodology, and what the results may mean for your treatment facility.