Memo

Ohio River Valley Water Sanitation Commission
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Since 1948
Improving Water Quality in the Ohio River for over 75 Years

DATE: September 18, 2025

TO: Technical Committee

Jeffrey Hurst, VA, Chair	David Pfeifer, USEPA Region 5
Scott Twait, IL	Peter Cinotto, USGS
Gabrielle Ghreichi, IN	**Ex Officio**
Katie McKone, KY	Kathy Beckett, Chair, IAC
Damianos Skaros, NY	Krystina Garabis, Chair, PIAC
Melinda Harris, OH	Betsy Mallison Bialosky, Chair, PIACO
Christine Phillips, PA	Reese Johnson, Chair, POTW
Jeremy Bandy, WV	Heather Hulton VanTassel, Chair, WOAC
Erich Emery, USACE	Chris Bobay, Chair, WUAC
LTJG Connor Sullivan, USCG	Sam Dinkins, Executive Director

SUBJECT: Announcement of 239th Technical Committee Meeting, October 7-8, 2025, Covington, KY and Virtual

FROM: Jason Heath, P.E., BCEE

Jeffrey Hurst, with VADEQ, has been appointed as the new Chair of ORSANCO's Technical Committee, by Commission Chair, Joe Harrison, Jr., resulting from Scott Mandirola's retirement. Jeff wishes to thank Scott for his long-time service to the Technical Committee, and welcome everyone to the 239th meeting of the Technical Committee, which will take place at the Radisson Hotel Cincinnati Riverfront, Covington, Kentucky, and virtually, on Tuesday, October 7, from 1:00-5:00 P.M. (ET), and Wednesday, October 8, 8:30 A.M. to noon. He would also like to thank outgoing TEC member Kevin Halloran for his long-time service to the Technical Committee, and welcome Christine Phillips as the new TEC member representing PADEP. Christine is the Watershed Manager in the Office of Field Operations, Southwest District Office in Pittsburgh.

There will be a tour of the Thomas More University Biology Field Station on Tuesday afternoon, from 3:30 P.M., until 5:00 P.M., located at 8330 Mary Ingles Hwy, California, Kentucky. Lunch will be available at the hotel at Noon on Tuesday, followed by two presentations on PFAS issues at 1:00 P.M. We will then carpool to the field station around 2:30 P.M., with a 3:30 P.M. starting time for the tour. The tour will conclude around 5:00 P.M. The TEC meeting will resume on Wednesday morning at the hotel at 8:30 A.M. The field station is located approximately forty five minutes from the hotel.

Approximately one week prior to the meetings, Technical Committee members, Commissioners, ORSANCO staff, and registrants will receive an email that includes detailed information and instructions on how to participate virtually. Those planning to attend in person can still expect to receive this email. For virtual participation with the TEC meeting, TEC members do not need to register; however, members of the public and other interested parties will be required to register to attend virtually by Monday, October 6. To register, please visit www.orsanco.org/registration and submit the registration form. A link to register will also be available on www.orsanco.org under the "News" section.

The Technical Committee meeting will be held in conjunction with the 243rd Commission meeting being held on Thursday, October 9, also in-person as well as virtual.

Notes on TEC agenda items are as follows:

Tuesday, October 7
1:00 - 2:30 P.M. Radisson Hotel – Bluegrass Ballroom

Item 1: MSDGC's PFAS Action Plan: Credibility Where it Counts and Strategic PFAS
Scott Bessler with Municipal Sewer District of Greater Cincinnati will present on MSDGC's leadership in the PFAS preparedness space with a robust understanding of fate and transport of PFAS compounds in its collection system and treatment facilities. To increase awareness of PFAS within Hamilton County, MSD has created its PFAS action plan where the importance of credibility is stressed and addressed through four pillars: Communication, Regulation, Elimination and Detection, or CREDability. One important area of emphasis/ awareness building from this plan is use of PFAS compounds in consumer products and its contribution to sewer systems.

Item 2: Predicted Potential for Aquatic Exposure Effects of Per- and Polyfluorinated Alkyl Substances in Pennsylvania's Statewide Network of Streams
Sara Breitmeyer, with USGS, will report on Per- and polyfluoroalkyl substances (PFAS) contaminants that can lead to adverse health effects in aquatic organisms, including reproductive toxicity and developmental abnormalities. To assess the ecological health risk of PFAS in Pennsylvania stream surface water, we conducted a comprehensive analysis that included both measured and predicted estimates. The potential combined exposure effects of 14 individual PFAS to aquatic biota were estimated using the sum of exposure-activity ratios (ΣEARs) in 280 streams. Additionally, machine learning techniques were utilized to predict potential PFAS exposure effects in unmonitored stream reaches, considering factors such as land use, climate, and geology. Leveraging a tailored convolutional neural network (CNN), a validation accuracy of 78% was achieved, directly outperforming traditional methods that were also used, such as logistic regression and gradient boosting (accuracies of ~65%). Feature importance analysis highlighted key variables that contributed to the CNN's predictive power. The most influential features highlighted the complex interplay of anthropogenic and environmental factors contributing to PFAS contamination in surface waters. Industrial and urban land cover, rainfall intensity, underlying geology, agricultural factors, and their interactions emerged as key determinants. These findings may help to inform biotic sampling strategies, water quality monitoring efforts, and policy decisions aimed to mitigate the ecological impacts of PFAS in surface waters.

3:30 - 5:00 P.M. Tour of the Thomas More University Biology Field Station, 8330 Mary Ingles Hwy, California, KY.

Dr. Chris Lorentz and Molly Williams, Field Station Manager, will be leading the field station tour. The Thomas More University Biology Field Station was the former site of Lock and Dam 35, one of 51 such facilities built by the U.S. Army Corp of Engineers in the late 19th and early 20th centuries. The University acquired the 25-acre site in 1967 from the federal government, and shared joint ownership with the Federal Government until the property was turned over to the University in 1997.

The Biology Field Station has established a long-term ecological monitoring program on the Ohio River. For over 35 years, this research has examined the water quality, habitat and fish populations around two coal-burning power plants currently operated by DUKE Energy. The primary objectives of these studies are to assess the aquatic ecosystem around the plants by examining the current composition of the fish community, the spatial variation between the fish populations upstream and downstream of the plant, and the hydrological, chemical, and physical characteristics of the Ohio River near the plant.

The Water Quality Lab at the Field Station houses, a gas chromatograph (donated by ORSANCO). The GC will be used for monitoring the Ohio River, or to run samples from any other source.

Freshwater mollusks are arguably North America's most threatened and endangered group of animals. The Station partnered with the Freshwater Mussel and Conservation Research Center operated by The Ohio State University and Columbus Zoo, the Kentucky Department of Fish and Wildlife Resources, and the Newport Aquarium to understand the basic biology of imperiled mussels and assist in the recovery efforts of threatened/endangered mussel species. Most recently, the Field Station installed a system of tanks, utilizing Ohio River water, to provide for the holding of adult and juvenile mussels (both non-federally listed and federally listed). Ultimately, the goal will be to propagate and culture of federally endangered species (i.e., sheepnose, rough pigtoe, purple cat's paw, spectaclecase, orangefoot pimpleback, pink mucket, clubshell, and other species), which will be used in the recovery of these species in the Ohio River.

These are a few of the scientific areas the field station is involved with. The tour will highlight their research, education, and outreach programs, including meeting our freshwater mussels and hellbenders and seeing our state-of-the-art water quality monitoring equipment.

Wednesday, October 8 - Reconvene
8:30 A.M. – 12:00 P.M. Radisson Hotel – Bluegrass Ballroom

Item 3: Minutes of the 238th Technical Committee Meeting
Draft minutes of the 238th Technical Committee meeting were sent on September 18. Chair Hurst will ask TEC members for revisions or approval of the minutes.

Item 4: Executive Director's Report
Executive Director Dinkins will report on selected items.

Item 5: Technical Committee Member Reports
TEC members are invited to report on water quality issues of importance to their organization. Members are encouraged to provide staff with a written summary after the meeting in order to facilitate accurate meeting minutes.

Item 6: Long-term Analysis of Water Quality Trends in ORSANCO's Bimonthly and Clean Metals Constituents
Riley Lanfear, ORSANCO staff, will present interim results of a fifteen year trends analysis on ORSANCO's bimonthly and metals water quality data. The Seasonal Kendall test was used to determine presence of positive or negative trends at each parameter and monitoring station from 2009-2024 using concentration data and flows from the Ohio River HEC-RAS Community Model. Trends were also run on the data using an updated method called Watershed Regressions on Time, Discharge, and Season (WRTDS) where sufficient flow data was available. Results from both these tests were compared to assess water quality trends over the study period and to compare with previous studies.

Item 7: ORSANCO Monitoring Strategy Review
Jason Heath, ORSANCO staff, will report that the Monitoring Strategy Committee met on July 31, 2025, to begin review of ORSANCO's existing monitoring programs to identify opportunities for efficiencies. A survey was developed by staff and sent to the committee for input on efficiencies that could be implemented and would have a positive effect on monitoring budgets. Interim results will be presented.

Item 8: Source Water Protection and Emergency Response Programs Update
Lila Ziolkowski, ORSANCO staff, will report that since the last TEC meeting, staff attended emergency response preparedness drills, source water protection meetings, received training on the portable Griffin GCMS system that was recently purchased, provided on-river source water assessments of potential threats to Cincinnati and Northern Kentucky water utilities for their Ohio River Source Water Alliance (ORSWA) updated protection plan, and attend the Mississippi River Watershed Partnership Workshop. Staff will provide an overview of these events.

Item 9: Biological Programs Update
Ryan Argo, ORSANCO staff, will provide a progress update regarding the 2025 probabilistic surveys in Willow Island, Racine, and Cannelton pools. Ryan Argo will also detail the upcoming schedule for review of data sets and methodologies to be included in the 2026 Biennial Water Quality Assessments (305b report).

Item 10: Water Quality Monitoring Programs Update
Greg Youngstrom, ORSANCO staff, will provide an update on ORSANCO's HAB monitoring and response activities this summer. He will also report on a new analytical system for HAB toxin testing, since we are no longer able to acquire the necessary supplies for the current system.

239th Technical Committee Meeting
Radisson Hotel Cincinnati Riverfront
Covington, Kentucky
October 7-8, 2025
Beginning at 1:00 P.M. (ET)
Chair Jeffrey Hurst, Presiding

TECHNICAL COMMITTEE MEETING AGENDA

CHAIR'S WELCOME AND ROLL CALL (Tuesday, October 7, 2025, 1:00 P.M.)

AGENDA ITEMS (Tuesday, October 7, 1:00 P.M. – 2:30 P.M.)

1. MSDGC's PFAS Action Plan: Credibility Where it Counts and Strategic PFAS Work – Scott Bessler, MSDGC
2. Predicted Potential for Aquatic Exposure Effects of Per- and Polyfluorinated Alkyl Substances in Pennsylvania's Statewide Network of Streams – Sara Breitmeyer, USGS

TOUR: THOMAS MORE UNIVERSITY BIOLOGY FIELD STATION (Tuesday, October 7, 2025, 3:30 P.M. – 5:00 P.M.) 8330 Mary Ingles Hwy, California, Kentucky – Chris Lorentz and Molly Williams, Thomas More University)

AGENDA ITEMS (Wednesday, October 8, 8:30 A.M. – NOON)

3. Action on Minutes of 238th Technical Committee Meeting – Chair Jeffrey Hurst *
4. Executive Director's Report – Sam Dinkins, staff
5. Technical Committee Member Reports – State, Federal, and Advisory Committee Members
6. ORSANCO's Long-term Analysis of Water Quality Trends in Bimonthly and Clean Metals Constituents – Riley Lanfear, staff
7. ORSANCO Monitoring Strategy Review – Jason Heath, staff
8. Source Water Protection and Emergency Response Programs Update – Lila Ziolkowski, staff
9. Biological Programs Update – Ryan Argo, staff
10. Water Quality Monitoring Programs Update – Greg Youngstrom, staff

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OTHER BUSINESS

- Comments by Guests
- Announcement of Upcoming Meetings
  February 10-11, 2026 – Covington, KY
  June 9-10, 2026 – French Lick, IN

ADJOURNMENT (NOON)

*Attachment

Agenda Item 1
239th Technical Committee Meeting
October 7-8, 2025
Covington, KY

MINUTES
238th Meeting of the Technical Committee
Morgantown Marriott at Waterfront Place
Morgantown, West Virginia
June 10-11, 2025
Chair Scott Mandirola, Presiding

Call to Order

The 238th meeting of the ORSANCO Technical Committee was called to order by Chair Scott Mandirola, at 1:00 p.m. on Tuesday, June 10, 2025. Eight states, four federal agencies, and five advisory committees were represented (Roster of Attendance see page 13).

Field Trip to Richard Mine Treatment Facility

On Tuesday afternoon, Dr. Paul Ziemkiewicz, Director, West Virginia Water Research Institute, provided an overview of the West Virginia Water Research Institute, and its programs, at the hotel, prior to leaving for the field trip to the Richard Mine Treatment Facility. Sheila Vukovich, WVDEP, led the Richard Mine AMD treatment facility tour. The Richard Mine AMD Treatment Plant was constructed and is operated by the WVDEP Office of Abandoned Mine Lands and Reclamation and went online in April 2024. The facility treats an average of 400 gallons per minute of acid mine drainage from the abandoned Richard Mine and has successfully improved water quality in the lower Deckers Creek watershed. The facility is designed to support recovery of rare earth elements from the AMD wastewater. Commercial viability of REE recovery from the Richard AMD is being studied by the West Virginia Water Research Institute.

Beginning Wednesday morning, Chair Mandirola welcomed all to ORSANCO's dual in-person and virtual meeting of the Technical Committee.

Minutes of 236th Committee Meeting

ACTION: Motion passed to accept the minutes of the 237th Technical Committee meeting.

Executive Director's Report

Director Dinkins reported that the Program & Finance Committee met in April to finalize the FY26 budget. The 5-year budget forecast shows real challenges ahead. Staff will be working with the Commission to identify potential new funding opportunities and evaluating potential cost reductions to meet budget targets. Staff submitted a Congressionally Directed funding request through Senator Capito's office to upgrade ODS sites in West Virginia. This request is similar in nature to the one we received through former Senator Sherrod Brown's office to replace ODS equipment in Ohio. The Commission held a special meeting on May 5th to approve a resolution supporting the development of legislation to create an Ohio River Basin Restoration Program to direct much needed federal funding to address water resource challenges in the Ohio Valley. Staff have also been working with our DC advisor Martin Edwards on a number of fronts to increase federal funding for the Commission. This includes adding language to the Restoration Program legislation introduced by Congressman McGarvey and Congresswoman Houchin to make ORSANCO eligible to receive Restoration Program funding and to encourage Congress to increase 106 funding which has failed miserably to keep pace with inflation.

He also mentioned that the Ohio River Basin Alliance and the National Wildlife Federation released the long-awaited Ohio River Basin Restoration Report last week. This report serves as a case statement establishing the need for federal investment in the Ohio River Basin, on par with what is provided to numerous other basins and bodies of water in other parts of the country. The 45-day public comment period opened on June 5.

Also noteworthy was the recent announcement that the Ohio River Way was successful in getting a 308-mile stretch of the Ohio River from Ashland, KY to West Point, KY designated as a National Water Trail by the National Park Service. And lastly, he encouraged all in attendance to come visit the Life Below the Waterline display at 3:30 this afternoon. We have several staff on hand to provide some background on this incredibly successful public education tool. Thanks to all the staff that helped make this happen.

Applied Science to Improve Invasive Carp Management in the Ohio River

Dr. Brent Murry, with Davis College, West Virginia University, will present on the following:

Invasive carp are being actively managed by state and federal agencies throughout the Ohio River, but uncertainties limit many management alternatives. Like most invasive species situations, invasive carp management currently lacks defined targets and goals. Researchers at West Virginia University are engaged in multiple projects to address some of the most critical information gaps. This presentation highlighted individual research projects around three dominant themes (1) quantification of invasive carp ecological impacts, (2) assessment of habitat conditions that may limit/promote spread, and (3) development of management tools to (a) determine monitoring effort needed to detect carp presence and track changes in abundance and (b) establish harvest and restoration targets. Both sets of tools are intended to support decision-making, increase accountability, and justification of management effort.

Biological Programs Update

Ryan Argo provided an overview of the final 2024 biological assessments of Montgomery and Newburgh pools which both meet established criteria. Plans for the upcoming field season were presented including pool surveys in Willow Island, Racine, and Cannelton pools. He also provided a status update regarding ORSANCO's ongoing database infrastructure update.

Source Water Protection and Emergency Response Programs Update

ORSANCOs organics detection system (ODS) received notification for OFY26, ORSANCO will receive $107,416 from an OH604(b) grant to support operations and maintenance costs for the upcoming fiscal year. Funding comes from the Biden Administration's Bipartisan Infrastructure Law (BIL) year 3 of a 4 year funding initiative. Grant applications for FFY26 were submitted to Senator Capito's Office (CDS funds) and Congressman Riley Moore's Office (CPF) funds to support ODS instrument upgrades in West Virginia. (Update-requests were rejected by both offices). Portable GCMS instrumentation purchased with CDS funding from Senator Brown's office (update-instrument received, training set for September). Looking to do a demonstration at America's Roots Festival in October.

Staff participated in Region 3 and Region 5 Source Water Protection (SWP) meetings, PFAS and river water consumption and resuse for massive data centers being built in Ohio River Basin pose large concerns and predominant topics of interest. Pennsylvania SWP groups in Allegheny, Monongahela and upper Ohio heard presentations by staff on ODS and SWP and are still interested in working with ORSANCO to expand and enhance Spill Notification Services. Staff will be assisting the Ohio River Source Water Assessment (ORSWA) group with on river assessments of potential sources of contamination within their 25 mile zone of critical concern during the summer.

Under Emergency response, staff participated in HAZMAT chemical training refresher course and will be participating in full-scale emergency response exercises at Nestle-Purina, City of Owensboro and Marathon Petroleum in the upcoming weeks. This allows ORSANCO to assess and improve its own response strategies and efforts and maintain communications with key agencies and stakeholders.

Water Quality Monitoring Programs Update

Greg Youngstrom, ORSANCO staff, presented an update on the status of Monitoring and Assessment programs. Contact recreation sampling began April 1 and will continue through the end of October. The real-time bacteria monitoring project which was funded by a WV 604b grant has acquired a Fluidion ALERT One instrument. Eleven paired samples have been collected so far with the instrument showing good agreement with the standard Colilert method. The Proteus instrument which is also being evaluated has been sent to the manufacturer for repairs.

ORSANCO HAB Monitoring, response and Communication Plan has been updated for 2025. State and federal partners have asked that we add Anatoxin and Saxitoxin testing to our standard analytes. HAB sensor deployment has been delayed due to river conditions but it is anticipated that they will be deployed in June.

A demonstration project for water quality sensors has been completed with Cleveland Water Alliance with the sensors deployed in 4 locations in the Cincinnati area.

Monitoring Strategy

Jason Heath, ORSANCO staff, reported on activities of the Monitoring Strategy Committee. The committee has met six times over the past two years to develop priorities for future monitoring activities, and update ORSANCO's Monitoring Strategy including the future monitoring priorities. The committee endorsed the monitoring strategy for public release. The Commission may wish to endorse the strategy also. In addition, the committee will be reconvening to evaluate potential budget reductions for individual monitoring programs that may be desirable should future federal grants be reduced (or eliminated). The TEC Committee passed an action approving the Commission's Monitoring Strategy Document. The document will be posted to the Commission's website.

ACTION: Motion passed to approve the document, "Ohio River Water Quality Monitoring and Assessment Strategy, June, 2025."

Member Updates and Interstate Water Quality Issues

Illinois
Scott Twait reported the following:

Triennial Review
An InterGovernmental Agreement (IGA) for the evaluating the Recreational Use in several waterbodies in the Chicagoland area has been executed. The University of Illinois will be doing surveys to determine the recreational use that is happening in the Chicago Sanitary and Ship Canal, Bubbly Creek, and the Brandon Pool section of the Des Plaines River this summer at access points to these waterbodies. The recreational survey is being completed to determine the recreational use as part of the triennial review.

The University of Illinois will begin the recreational use survey in mid to late June. The survey will be available in English, Spanish, and Chinese.

PFAS Permit Progress
As of 6/31/25 the NPDES permit program is issuing permits that have PFAS monitoring requirements (quarterly) and requirements for BMPs/PMPs. The count includes the major municipal, major industrial, as well as the minor industrial facilities within the targeted industrial SIC codes.

- NPDES permit issued with PFAS requirements:
  - 12 Municipal
  - 36 Industrial
- NPDES permits on public notice:
  - 15 Municipal
  - 21 Industrial

Plan is still to add both monitoring and BMP requirements to the permits as they come in for renewal.

Groundwater Standards
The Illinois EPA proposed amendments to 35 Ill. Adm. Code 620, which included standards for Perfluorobutanesulfonic acid (PFBS), Perfluorohexanesulfonic acid (PFHxS), Perfluorononanoic acid (PFNA), Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS) and Hexafluoropropylene oxide dimer acid, Gen X (HFPO-DA) to the Illinois Pollution Control Board (Board) on December 7, 2021. Prior to adopting the groundwater standards, the Board held three public hearings, had three rounds of pre-filed questions and accepted multiple public comments, many of which centered on the Perfluorinated compounds. On March 7, 2024, the Board issued a first-notice proposal.

After another round of Board questions to the Illinois EPA, the Board issued a Draft Second Notice. The final rules with the Perfluorinated groundwater standards were adopted January 23, 2025, and became effective March 28, 2025. The groundwater standards for the Perfluorinated compounds (in milligrams per liter) are: PFBS, 0.002; PFHxS, 0.000010; PFNA, 0.000010; PFOA, 0.000004; PFOS, 0.000004; HFPO-DA, 0.000010.

PFAS	Groundwater Standard (mg/L)	Groundwater Standard (ng/L)
PFBS	0.002	2,000
PFHxS	0.000010	10
PFNA	0.000010	10
PFOA	0.000004	4
PFOS	0.000004	4
HFPO-DA	0.000010	10

Indiana

Gabrielle Ghreichi reported the following:

2025 Legislative Session Summary

Indiana wrapped up its legislative session this spring 2025. A few bills related to water issues passed during Indiana's last legislative session:

- **SB 4 Water Matters:** The law aims to address concerns over large water transfers like those planned to serve the controversial LEAP industrial district in Lebanon, Indiana. It requires companies creating long-haul water pipelines to get a certificate from the Indiana Utility Regulatory Commission. If that big water transfer happens between two different water basins — they also must get a permit from the Indiana Department of Natural Resources. Existing water transfers are exempt.
- **HB 1037 Stormwater:** This law restricts local governments from creating stormwater management rules for construction sites that are stricter than state-level regulations but allows local governments to enforce clear violations of stormwater rules on properties small than one acre (e.g. housing sites). This law goes in line with the Governor's overall emphasis on not adopting rules and regulations that are more stringent than federal requirements.
- **SB 459/IDEM Agency Bill:** The law will focus on cybersecurity measures for water systems. The law grants IDEM's environmental rules board the ability to regulate water reclamation and reuse. Below are some of the bill's specific requirements related to cybersecurity:
    - Before Sept. 1 of every year, facilities must tell the Indiana Office of Technology the name and contact information of anyone who would be a "primary reporter" in a cybersecurity incident.
    - Starting in 2026, facilities must provide a certification that they completed their vulnerability assessment, have fixed any vulnerabilities (or have a plan to fix them) and any updates to their emergency plans coming from the assessment.
- A recent **Executive Order 25-38 from Governor Braun titled "Excessive Environmental Regulations"** charges IDEM with the following:
    - IDEM will be required to review all regulations prior to October 31st of 2025 to determine compliance with the Executive Order.
    - IDEM must submit a written report to the Governor and Legislative Council by December 31, 2025.
- IDEM is looking for the public's feedback on existing environmental regulations and policies in the Hoosier state. There is a public notice period through June 30th to hear about any regulations or policies that may be overly burdensome to individuals, businesses, communities or industries. More information can be found here: https://events.in.gov/event/idem-seeks-public-input-on-evaluation-of-existing-regulations

Drinking Water Updates

- On May 16th EPA announced it is planning to change the PFAS drinking water regulation that was published in April 2024. EPA will keep the MCL for PFOA and PFOS but is planning to rescind the regulations and reconsider the regulatory determinations for PFHxS, PFNA, HFPO-DA (commonly known as GenX), and the Hazard Index mixture of these three PFAS plus PFBS. EPA also announced that they will be extending the MCL compliance deadlines for PFOA and PFOS. Water systems originally had until 2029 to comply with the new MCLs, but now they will have until 2031. For more information, see EPA's Press Release.
- IDEM's drinking water system sampling update: Phase 5 sampling started in March with IDEM sending coolers to the non-transient non-community (NTNC) systems that had responded to our original letter. However, we had to change our scope of work from sending coolers with sampling supplies, to IDEM staff going out and collecting the samples. This was due to many samples arriving at the lab with the field blank done incorrectly, samples out of temperature or chain of custody's filled out incorrectly. IDEM staff coordinated with system operators to schedule sampling and show operators how to collect the field blank as well as answer any questions they had regarding PFAS sampling and compliance.
- Drinking water staff are currently helping 238 schools complete their first round of initial compliance monitoring for PFAS. Most sampling should be completed by end of this week. We will use the last couple weeks of June to do resamples and catch any that were unavailable.

Monitoring Updates

- IDEM's 2025 fish tissue program will be sampling Ohio River tributaries and the Great Lakes tributaries this year.
- In October 2024, IDEM finished sampling 25 sites for the special project titled "Farmers Helping Hellbenders Initiative" in the Blue River and Indian Creek watersheds in the Ohio River basin.
- Water chemistry was collected monthly for 1 year, pesticides (including neonicotinoids) sampled monthly through October, and macroinvertebrates sampled once July - August. The sampling was conducted in collaboration with Purdue University and the Natural Resources Conservation Service's (NRCS) Regional Conservation Partnership Program (RCPP). Some staff even got to help with the release of state-endangered hellbenders. There were also a couple of low-head dams in the Indian Creek watershed that were removed as well.
- This project had several objectives. The first objective was to collect data to inform management decisions in the future and to identify where the highest sediment and nutrients loads may be coming from, to help target future areas to prioritize funding BMPs and watershed projects. IDEM calculated the flow weighted mean concentration of nutrients and suspended solids. In addition, IDEM calculated the pollutant loads of these pollutants.
- In addition, water chemistry was sampled in both the Blue River and Indian Creek watershed to compare both watersheds to ensure that there were similar enough to support the introduction of hellbenders in Indian Creek.
- Another major objective of the project was to conduct performance monitoring at a couple sites in the Blue River watershed, to compare data between 2015 and 2024. The data showed positive reductions in TSS, TN, and TP at the two sites and is indicative of the conservation work done in the South Fork of the Blue River watershed. At one site, there was a 10-point jump in the macroinvertebrate IBI score. Biologists were also impressed with a 56/60 score for the fish IBI at one of the sites.
    - Biologists noted the collection of unique fish species at a couple of the sites at the South Fork Blue River watershed:
        - Scarlet Shiner- this was notable since IDEM was sampling at the northwest edge of their range.
        - Banded Darter- sensitive species in general.
- IDEM's macroinvertebrate team plans to return this summer to sites near Corydon, IN collect macroinvertebrates to help with pre and post dam removal analysis in the Indian Creek watershed.

Kentucky
Katie McKone reported the following:

PFAS Related
The Kentucky PFAS Explorer is now live, which is a mapping tool for viewing PFAS results for sampling conducted by the KY Division of Water (DOW). The results are presented for drinking water, fish tissue, surface water, and groundwater.

Waters of the Commonwealth – definition change via SB89
The Cabinet is continuing to evaluate process and program modifications in response to the change in definition of the "Waters of the Commonwealth" resulting from the enactment of Senate Bill 89 as passed in the 2025 Regular Session of the Kentucky General Assembly. The Cabinet will continue to update the SB89 webpage to provide the public and permittees with the most up-to-date guidance as it is developed. The guidance posted on this website reflects the Cabinet's understanding of the laws and regulations under its purview, and is not intended to modify, expand, or limit any existing statute or regulation.

Nutrient Related
In 2017, the Kentucky Legislature asked EEC to identify measures to mitigate failing package plants. Between 2017 and 2023, EEC coordinated with local wastewater treatment facilities on the elimination of twenty-eight (28) failing package plants. The Division has published a story map highlighting this work with details on three specific projects. It's estimated that resulting wastewater improvements eliminated ~25,700 pounds per year of ammonia, and 8.9 billion colonies per day of *E. coli.*

Upcoming Public Meetings
The division is planning to have a public meeting about the Floyds Fork watershed in later summer or early fall. The best way to stay informed about when this meeting is scheduled is to join the TMDL email distribution list or to monitor the public notice and hearings webpage

Ohio
Melinda Harris reported on the following items:

Water Quality Monitoring and Assessment
The 2025 field season is underway. We plan to conduct biological and water quality surveys in the Licking River Watershed, the Captina Creek, and McMahon Creek Watersheds, as well as recreation and public drinking water supply surveys in the Paint Creek and Moxahala Creek Watersheds.

Water Quality Standards Rulemakings Underway
The comment period on the proposed water quality standards variance rule closed on June 5, 2025. This rulemaking includes updates to be consistent with U.S. EPA's 2015 regulations, updates to the multi-discharger mercury variance, and inclusion of a new multi-discharger ammonia variance for controlled discharge lagoon wastewater treatment plants. This rulemaking paves the way for the update of the aquatic life criteria rule, which will include revised ammonia criteria.
The draft Stream Nutrient Assessment Procedure rules are available for public comment until June 17, 2025. The SNAP addresses how Ohio EPA determines if streams and rivers are impaired due to excessive nutrients. Implementation of this rule will be addressed in a separate but closely following rulemaking.

The Early Stakeholder Outreach comment period closes June 30, 2025, for a new water quality standards recreation use subcategory that would be specific to waters that receive discharges from combined sewer overflows from communities and that meet certain criteria established in the rule, including a use attainability analysis and a high level of CSO control.
All documents available here: https://epa.ohio.gov/divisions-and-offices/surface-water/regulations

Water Studies

Ohio EPA and Ohio Department of Natural Resources partnered to facilitate regional comprehensive water studies across Ohio. The goal is to evaluate current water availability, current water demand, projected future water demand, and plan for the future. The water study for central Ohio is complete and studies for southwest and southeast Ohio are underway. Please see the following link for additional details: https://epa.ohio.gov/monitor-pollution/pollution-issues/water-studies/central-ohio-water-study

TMDLs

The comment period on the preliminary modeling results (step 4 of the TMDL development process) closed June 9, 2025, for the multi-watershed recreation TMDL. Additional information is available here: https://epa.ohio.gov/divisions-and-offices/surface-water/reports-data/multi-watershed-tmdl-projects

Pennsylvania

Kevin Halloran reported on the following:

1. Triennial Review of Water Quality Standards proposed rulemaking published in the PA Bulletin in October 2023.

   PADEP presented the draft final-form rulemaking to the Agricultural Advisory Board (AAB) in April and the Water Resources Advisory Committee (WRAC) in May. WRAC voted to support the final-form rulemaking to the Environmental Quality Board (EQB).

   PADEP is scheduled to present the final-form rulemaking to the EQB at its July 8, 2025 meeting. Rulemaking documents and related materials will be made available to the public on the EQB's website approximately 2 weeks prior to the meeting. If approved by the EQB, the regulation will be submitted to the Independent Regulatory Review Commission (IRRC) for final review and action.

   17 new or updated WQ Criteria

   – 14 Human Health (HH) 1,4 – Dioxane, 2,4-D, Chloroform, Barium, Boron, Methyl ethyl ketone, 1,2,3-trichloropropane, 1,2,4-trimethylbenzene, 1,3,5- trimethylbenzene, Xylene, Acetone, Formaldehyde, Metolachlor, Resorcinol

   – 3 Aquatic Life (AL) Cadmium (updated), Carbaryl (new), Tributyltin (TBT) (new) Minor definition revisions.

2. DEP presented a proposed rulemaking for stream re-designations to the EQB in September. The EQB adopted the proposed regulations relating to Class A Stream Redesignations. These amendments were published in the Pennsylvania Bulletin on February 1, 2025, to solicit public comment. The official public comment period concluded on March 18, 2025. Comments were received from 7 commentators and were generally supportive of the rulemaking. DEP is currently preparing the final-form rulemaking and anticipates presentation of the final-form rulemaking to the EQB in the 3rd or 4th quarter of 2025. Additional information regarding this proposed rulemaking, the stream redesignation process and the stream evaluation reports are available on the PADEP web site.

3. The Site-Specific Criteria final-form rulemaking was presented to, and adopted by, the EQB at its meeting on April 8th 2025. This final-form rulemaking amends DEP's site-specific criteria development regulations in § 93.8d. The Independent Regulatory Review Commission (IRRC) will consider this final-form rulemaking at its June 26th meeting.

4. PFAS update: all community public water suppliers are sampling, started putting sampling requirements in NPDES permits.

5. ALCOSAN update. Completed most of the new headworks. Submitted permits applications for Ohio River tunnel, plan to start this spring.

New York
Commissioner Conroe reported that recent wetlands regulations are under litigation in the state. The NYDEC is focusing on harmful algae blooms in the Finger Lakes, including Chautauqua Lake, where a Nutrient Budget revision process is underway.

West Virginia
Scott Mandirola reported the following:

Legislative Session ended April 12. Rules for 2025 session:

WQS triennial review proposal for the 2025 47CSR2
- E Coli is being proposed for change from fecal
- Addition of an alternative aquatic life use based on the completion of a UAA
- Addition of 7 HH criteria currently not in the rule. 54 of the 96 2015 EPA updates were included in the last TR, these 7 new parameters are currently in permits because there is RP based on the NPDES permitting guidelines for the particular Industrial Codes.
* (Additional changes to category A, Use and value demonstration)

NPDES Fee rule is being updated 47CSR26
- 75% increase, hasn't been increased for Industrial permits since 1999, municipalities since 1992.
- If no fee increase the program will runout of money by August 2025.
*(additional changes to the NPDES rule to include changes such as modify an expired permit)

Air rules
- 5 rules are being updated to incorporate new federal requirements (IBR)

Haz waste Rule
- One rule being updated to incorporate new federal requirements (IBR)

DEP has 3 legislative changes for session being proposed.
1 - NPDES fee cap removal
2 - Haz waste fee sunsets and needs to be extended
3 - Remove sunset on the design build pilot program

Permit action
- Chemours reissuance for Washington works facility is in, the company is modifying the application currently
- Chemours has been issued a second permit for a second PFA production line which has been in production since September 1. Three carbon bed treatment is required on this line to achieve 99.999 percent removal for GenX and PFOA .

PFAS Protection Act status
- USGS completed testing 106 additional finished water sources, results are on their website
- (on Hold by federal gov, this has been appealed and may be reversed) WV has received a 1 million dollar grant from EPA to do public outreach for emerging pollutants in disadvantaged communities (PFAS). It has been awarded 3 virtual and one in person meeting have been held for planning with the participating NGO'S. The first outreach meeting in the communities should be held shortly
- Reporting of PFAS use by industries completed on 12/31/23. The 6 industries that have reported the use or manufacture of PFAS compounds have had their permits modified to include quarterly monitoring for PFAS, as per the Act.

DEP has received UIC Class VI primacy from EPA.

DEP is submitting the 2024 integrated report to EPA using an updated assessment tool which resolves a longstanding issue between using family vs genus level assessment.

Last thing to mention is the new controversial issue in permitting is DATA CENTERS

USACE
Erich Emery reported that no new or significant water quality related issues to report on at this time.
Our Division Water Management Team is focusing on Ohio River Low Flow Management Planning

- We are actively working towards a sustainable operational framework for managing low flows along the Ohio River by developing a system-wide ResSim model to simulate lock and dam operations under various low flow scenarios, supporting decisions that reduce flow variability and enhance navigation reliability.
- The objective is to minimize flow fluctuations and maintain consistent navigation, especially during extended dry periods.

April 2025 Flood Event – Response & Performance

- Between April 2nd and 5th, a stalled frontal boundary and persistent heavy rainfall resulted in extreme runoff across the lower Ohio Valley — with Marshall County, KY recording 15.59 inches, an all-time record.
- The Ohio River experienced major flooding at multiple locations: Owensboro saw its highest crest since 1997; Evansville, the highest since 1964.
- USACE reservoirs played a crucial flood mitigation role by adjusting releases early and modulating flows to maximize storage, significantly reducing peak stages downstream:
    - Cairo, IL: Natural 56.35 ft → Regulated 52.68 ft (↓ 3.67 ft)
    - Paducah, KY: Natural 52.19 ft → Regulated 48.15 ft (↓ 4.04 ft)
    - Smithland L&D: Natural 51.94 ft → Regulated 47.93 ft (↓ 4.00 ft)

USEPA
Dave Pfeifer reported that a number of EPA staff are leaving the agency in the short-term, and indicated that Region 5 will be adjusting staff to fill the necessary gaps over the coming months, with Ed Hammer's retirement being a notable loss in support of the region's monitoring programs.

USGS
Dave Lampe introduced himself as the Associate Director of the Indiana office of the Indiana-Kentucky-Ohio Water Science Center. He indicated that he is filling in for Pete Cinotto, who is now the acting Director, Indiana-Kentucky-Ohio Water Science Center. This position was left open due to Jeff Frey's retirement. He reported on the Ohio River stream gage at Paducah, and indicated that it is being moved temporarily due to construction, and will be returned to its original location after construction is complete. He also reported that the stream gage at Cincinnati was outfitted with an experimental velocity indicator, but that instrument has been determined to be ineffective at measuring velocity, so velocity will not be reported at the location.

USCG
Zachary Bender reported the following for the United States Coast Guard:

Lt. Commander Zachary bender introduced himself, and indicated that LTJG Connor Sullivan could not make this meeting, but would continue as the Coast Guard's representative to ORSANCO. He indicated his support and thanks for the cooperative, working relationship that the Coast Guard and ORSANCO share.

Industry Advisory Committee
Kathy Beckett reported the following:

The Industry Advisory Committee thanks the Commission for their good work. Business and industry are monitoring the federal and state work to modify and amend administrative rules and related programs. We support scientific integrity and the rule of law. Of particular interest is the proposed amendment to the Waters of the United States rulemaking proposal by USEPA. Our greatest concern is the need for effective programs and the implementation of those programs in a manner that is defensible. Business and industry seek stable and reliable permits and program development that allows for management of planning for business and the communities within which we operate. Funding plays a significant role in meeting those environmental needs and we share in concerns about funding that adversely impacts environmental program implementation. The IAC applauds the dedication of the Commission and its member agencies and thanks everyone for their commitment.

Power Industry Advisory Committee
Krystina Garabis reported the following:

Cheri Budzynski recently passed away unexpectedly, and Krystina will be leading the Power Industry Advisory Committee into the future. The Committee has been apprised of current ORSANCO actions and has no comments at this time.

The Committee is closely monitoring the litigation surrounding federal funding of energy projects as well as agency response to the new administration's position on agency review and reconsideration of certain rulemakings published during the previous administration – such as the ELG rule. Many of these rules, however, are still under review by the agency, pending appeal with the courts, and remain effective. Notably, the Fish and Wildlife Service and the National Oceanic and Atmospheric Administration (NOAA), however, has recently proposed to rescind its definition of harm under the Endangered Species Act, which will undoubtedly change ESA enforcement and permitting.

Public Information Advisory Committee
Betsy Mallison Bialosky reported the following:

PIACO met virtually on May 29 and reviewed a variety of communication topics including the rollout of the five-year basin-wide strategic communication plan. We brainstormed methods to best engage our stakeholders during the process.

We talked about strategies to get the member state public information officers and emergency response directors together to better get to know each other to further communication efforts during a crisis. The goal is to collaborate basin-wide to develop consistent ORSANCO and member agency water quality messaging.

Potential major program changes to the annual River Sweep were discussed. To reap the benefits of extended press for ORSANCO, there are thoughts of moving the Sweep back to a one-day event across the basin. While we are still getting good volunteer action, ORSANCO is not getting the recognition from the smaller groups doing cleanups. Another reason for the potential change is to cut down on the manpower needed for shipping supplies out from March to October, but rather, a focused effort to get supplies out to member states for a one-day event.

Currently, this year, there are more than 76 events scheduled with 3,710 volunteers. There are currently the following Sweep events scheduled for this year – 11 events in Indiana with 454 volunteers, 33 events in Kentucky with 1,743 volunteers, 24 events in Ohio with 1,234 volunteers, two events in Pennsylvania with 35 volunteers and five events in West Virginia with 244 volunteers.
We also discussed education activities and the staff, small but mighty, has been very busy. They have participated in 30 water quality education events, 27 community events and eight Life Below the Waterline aquarium events, including the one here in Morgantown this week.

There was a discussion about potential activities during the America's RiverRoots Festival in northern Kentucky during the October Commission week. The aquarium will be part of the festival activities.
Our committee will meet again virtually in September.

Watershed Organization Advisory Committee
Heather Hulton VanTassel reported the following:

Thank you for the time and consideration when it comes to hearing from the Watershed Organizations across the Ohio River Basin.

We thank ORSANCO for continued critical monitoring of the Basin. The committee noted relatively high levels of dioxins and PCBs in the ORSANCO monitoring report. These chemicals are highly toxic to both aquatic and public health with some recent levels recently higher than in 2019, suggesting ongoing contamination. It would be worth source identification and remediation to prevent continued release of these harmful contaminants. We recognize that ORSANCO would be best suited for the identification and recommendation of remediation rather than implementation of remediation. However, ORSANCO could utilize their data and expertise to provide

recommendations to the necessary involved parties and seek assistance from Watershed Organizations in relevant regions.

We would like to thank ORSANCO for their continued efforts at expanding their focus on plastics and PFAS as emerging contaminants and increasing efforts around those contaminants. The Watershed Organizations across the basin still request ORSANCO reach out to those organizations conducting plastics, PFAS, or other novel contaminant monitoring work to amplify and utilize the combined efforts and data of those organizations when monitoring funds are limited. That data could also be used to help support ORSANCO's efforts to seek additional funds to expand their monitoring.

As a collective, we will continue to advocate for the Ohio River Basin Restoration Plan and federal designation of the Ohio River as a national resource. We would like ORSANCO to join us in emphasizing the importance of recognizing the threats and challenges of our basin, including legacy and current industrial pollution in Ohio River subwatersheds. While it can be politically challenging to bring light to these ongoing pollution sources, we cannot come together as a watershed to resolve these issues without first addressing this problem. The Ohio River Basin is worth restoring and protecting, and addressing industrial pollution is a necessary step.

We also recognize the uncertainty when it comes to federal funding at this time particularly around Environmental Justice and Climate Change. However, we encourage ORSANCO to continue to put effort toward environmental justice and climate change in their monitoring and educational efforts across the basin with focus on providing those services in communities that need it the most. Thank you for your time and consideration of these comments from the Watershed Organizations Advisory Committee.

Joint Water Users & POTW Advisory Committee Report

Reese Johnson, POTW Committee Chair, reported on behalf of himself and Chris Bobay, Chair of Water Users Advisory Committee, on the joint meeting of the POTW and Water Users Advisory Committees:

The Water Users Advisory Committee and the POTW Advisory Committee held a joint, two-day meeting on May 20-21, 2025 in Wilder, Kentucky and I am submitting this joint report on behalf of Chris Bobay, from the Louisville Water Company and Chair of the WUAC, and myself as chair of the POTW Advisory Committee. It was a very successful event, with 21 participants representing 11 different agencies plus ORSANCO.

We took the opportunity to do a top-to-bottom "run" of the river to introduce ourselves to our colleagues, figuring out whose intake was above and below others' discharges, mentioning any ongoing or planned upgrades at our facilities, and sharing pictures of the flooding this past spring. We also took some time to educate our colleagues on our typical treatment processes and the regulatory control points we each face. Daymond Talley from Louisville MSD presented on behalf of the POTWs, and had some really powerful graphics they developed to illustrate the "one water" cycle to students. Chris Bobay from Louisville Water presented on behalf of the WUAC, and illustrated how regulations for water users are structured differently from those regulating dischargers.

The technical focus of our meeting was the shared threat of PFAS, and we had multiple presentations on that topic. Scott Bessler from MSD of Greater Cincinnati presented an update on their efforts to address PFAS contamination in wastewater, focusing on their recent studies. He highlighted the presence of PFAS in various sources, including consumer products, industrial discharges, and landfills, and discussed their efforts to communicate with stakeholders, regulate industrial discharges, and explore treatment technologies. He also shared findings from studies on PFAS in residential sewers and landfill leachate, emphasizing the significant contribution of domestic sources to PFAS contamination. Eric Zhu from Louisville Water Company discussed the regulatory process for controlling PFAS in drinking water, including the EPA's review of the final rule and potential deadline extensions. He reviewed the occurrence of PFAS in Louisville Water, noting that PFOA was the only consistently detected compound of the PFAS suite. Eric presented options for treating PFAS, including GAC and powered activated carbon (PAC), and evaluated their effectiveness and costs. They concluded that PAC was a more cost-effective option than GAC. Nicole Tremblay from Louisville Water Company discussed their process of selecting and implementing a new LC (liquid chromatography) instrument for analyzing PFAS, commonly referred to as HPLC-MS/MS (or LC-triple quad), ultimately choosing Waters' LC Triple system after extensive research and consideration of factors such as price, service, training, and instrument specifications. They finished the install in January 2025 and have established method detection limits (MDLs) below 2ppt for all compounds. They are now

doing weekly river PFAS monitoring to support treatment process control using PAC and split samples with our contract lab for ongoing method validation. (ORSANCO is currently implementing an in-house LCMS system to improve monitoring and treatment adjustments for PFAS.)

Bruce Whitteberry from Greater Cincinnati Water Works discussed the treatment of PFAS in groundwater at their Bolton plant, which supplies 12% of Cincinnati's water from the Great Miami River/Buried Aquifer. They evaluated various treatment technologies, including building a more robust facility or using a less expensive but temporary solution. They are considering adding a GAC cap to existing sand filters to remove PFAS, after considering alternative compliance strategies like shutting down the plant or blending water from different sources. Jason Heath from ORSANCO presented data on PFAS and PFOA levels in the Ohio River, noting that human health criteria numbers were significantly lower than drinking water MCLs. He discussed their 2021 PFAS survey results and the potential for routine sampling for PFAS, which would require additional budget consideration. Ryan from ORSANCO presented findings from their fish tissue sampling program and the process for establishing consumption advisories, highlighting that they have been incorporating 35 PFAS compounds since 2022.

Finally, Jason Heath from ORSANCO presented their proposed monitoring strategy, which prioritizes adding PFAS monitoring to their ambient monitoring program. Members discussed the monitoring strategy, emphasizing the need to update bacteria information. Jason acknowledged the importance of balancing new initiatives with existing core monitoring tasks and encouraged committees to provide input on priorities. So future meetings will discuss recommendations for ORSANCO monitoring and report those recommendations to the Technical Committee.

Next Technical Committee Meetings
The next Technical Committee meeting will be October 7-8, 2025, in Covington, Kentucky.

Comments by Guests
There were no comments by guests.

Adjournment
The 238th meeting of the ORSANCO Technical Committee was adjourned by Chairman Mandirola at 11:50 a.m. on Wednesday, June 11, 2025.

Approved:

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Commissioner Proxy Scott Mandirola

Roster of Attendance

Technical Committee

Chairman	Commissioner Proxy Scott Mandirola
Illinois	Scott Twait
Indiana	Gabrielle Ghreichi
Kentucky	Katie McKone
New York	Not present
Ohio	Melinda Harris
Pennsylvania	Kevin Halloran (virtual)
Virginia	Not present
West Virginia	Scott Mandirola
US Army Corps of Engineers	Erich Emery (virtual)
US Coast Guard	LCDR Zachary Bender
US Environmental Protection Agency	David Pfeifer (virtual)
US Geological Survey	David Lampe (virtual)
Industry Advisory Committee	Kathy Beckett
Power Industry Advisory Committee	Krystina Garabis
Public Interest Advisory Committee	Betsy Mallison Bialosky
POTW Advisory Committee	Reese Johnson
Water Users Advisory Committee	Not present
Watershed Organizations Advisory Committee	Heather Hulton VanTassel
ORSANCO Chief Engineer	Samuel Dinkins
Staff Liaison	Jason Heath

Commissioners/Proxies

Tommy Branin, Douglas Conroe, George Elmaraghy, David Flannery, Toby Frevert, Bruce Herschlag (virtual), James Jennings, John Kupke (virtual), Lou Wallace, Mike Wilson

Staff

Ryan Argo, Stacey Cochran (virtual), Tracey Edmonds (virtual), Nick Guthier, Emilee Harmeling (virtual), Jason Heath, Riley Lanfear (virtual), Adam Scott, Bob Wehmeier, Greg Youngstrom, Lila Ziolkowski

Guests

Duke Adams (virtual)	PADEP
Melanie Arnold (virtual)	KY Division of Water
Jeremy Bandy	WV DEP
John Hirschfield (virtual)	Westlake Corporation
David Hoffman	WV Water Research Institute
Rayna Laiosa (virtual)	Chemours
Brent Murry	West Virginia University
Melissa O'Neal	WV Water Research Institute
Nick Reif	Kentucky Division of Water
Charlise Robinson (virtual)	WV Rivers
Ryan Sherman	Illinois EPA
Daymond Talley (virtual)	Louisville MSD
Jeff Thomas (virtual)	EPRI
Paul Ziemkiewicz	WV Water Research Institute