The Potomac River Basin Drinking Water Source Protection Partnership

Quarterly Meeting Summary held via webinar on February 1st, 2023

Attendees

Water Suppliers

Berkeley County PSWD:
Courtney Trivett

Fairfax Water:
Nicki Bellezza
Jojean Bolton
Doug Grimes
Susan Miller
Gregory Prelewicz
Niffy Saji
Michele Siminari

Loudoun Water:
Thomas Barrack
Gerardo Castaneda
Cathy Cogswell
Carolyn Hannoch
Julie Karceski
Mark Peterson
Bradley Schmitz

Town of Leesburg:
Melissa Andrews
Amy Wyks

City of Rockville:
James Woods

Washington Aqueduct:
Anne Spiesman

WSSC Water:
Robin Forte
Robert Hsu
Steven Nelson
Laura O'Donnell
Priscilla To
Daniel Yuan

State and Local Agencies

DC DOEE:
David Pilat
George Onyullo

MDE:
John Anthony
Robert Peoples

PA DEP:
Dave Bolig
Adrian Bouknight

VDH:
Tamara Anderson
Ellen Bright-Howard
David Dawson
Robert Edelman
Eric Herold
Jack Hinshelwood
Dan Horne
Deborah Hoy
Jeremy Hull
Raven Jarvis
Sherri Knight
Grant Kronenberg
Chad Merricks
Lucas Pennings
Dwayne Roadcap
Tony Singh
John Warwick

WVDEP:
Mindy Neil

WV DHHR:
Monica Whyte

Federal and Regional Agencies

EPA Office of Water:
Rebecca Christopher

EPA Region 3:
Calvin Yahn

ICPRB:
Renee Bourassa
Curtis Dalpra
Christina Davis
Rikke Jepsen
Heidi Moltz
Andrea Nagel
Stephanie Nummer

MWCOG:
Steve Bieber
Lisa Ragain

Other

Carollo Engineers:
Kyle Thompson*
Michelle Young*

** Denotes Guest*

Business Meeting

The DWSPP Quarterly Meeting on February 1, 2023, was held via webinar. There were 44 attendees, including the moderator and presenters.

A recording of the webinar is available on the ICPRB YouTube page.

Presentations

Evaluating Sources & Mitigation Strategies for PFAS Across the One Water Spectrum
Kyle Thompson, Carollo Engineers (presentation)

Dr. Kyle Thompson of Carollo Engineers, Inc. presented Project #5082 from the Water Research Foundation (WRF). To begin his presentation, Dr. Thompson discussed what PFAS (Per- and Polyfluoroalkyl Substances) are, unique properties associated with PFAS, and the most concerning substances in the PFAS family – PFOA and PFOS. The presentation then proceeded to compare the various types of PFAS substances to different types of lightsabers in the Star Wars Saga. This provided a visual from popular culture for the audience to compare the structure of different substances in the PFAS family. Further information presented on PFAS included where the substances have been found (including Mount Everest and the North Pole), the major sources of PFAS, and what gaps exist in our current understanding of PFAS.

The major sources and gaps in our understanding of how PFAS moves through the water cycle has led to project #5082 by the WRF. The goal of this project is to provide utilities with practical, implementable, and cost-effective guidance on PFAS source evaluation and mitigation strategies. To do this, they used a three-stage general approach: 1) gather utility data and experiences; 2) strategically fill data gaps; and 3) develop guidance with practical, implementable solutions.

The first stage of the approach used by WRF was achieved by collecting case studies from wastewater utilities. Case studies were collected from six different wastewater utilities regarding whether they had sampled for PFAs and to what degree source investigations have occurred. Results of these case studies showed that many utilities have been tested for PFAS, but few have formally investigated the sources. With the rapid changes occurring in the regulations for PFAS, these case studies highlighted the importance of being proactive and the benefits of collaboration among state and regional entities, universities, and utilities.

The second stage of this approach aimed to fill the data gap for wastewater, surface water, and groundwater. Using data from Michigan and the Social Science Environmental Health Research Institute (SSEHRI), common sources of PFAS to groundwater were examined. Landfills were found to be the most frequent source of PFAS in groundwater supplies in both databases. Further investigation into wastewater sources of PFAS found that domestic wastewater was the largest source of PFAS. The PFAS substances found in wastewater can have implications for surface waters. In wastewater effluents, the median value of PFOA is about 8 ng/L and the median value

of PFOS is about 4 ng/L. To exceed the 2022 interim health advisory level for PFOA of 0.004 ng/L it would take only 1/2000 of the median effluent.

On the third stage of this project, WRF conducted investigations looking at two different surface water reservoirs/rivers that act as drinking water sources. These two investigations looked into Lake Mead and Trinity River in Texas.

Investigations into Lake Mead showed that this reservoir, which acts as a drinking water source for about 40 million people, is currently at about 25% of its storage capacity. Inflow into Lake Mead comes from the Las Vegas Wash (from Las Vegas Metropolitan Area), groundwater, and other urban runoff. About 90% of the inflow into Lake Mead is treated wastewater. Looking at the PFAS substance associated with the waters flowing into Lake Mead, it was found that higher quantities of PFAS have been found in the Las Vegas Wash than the four wastewater treatment plants (WWTP) that discharge to it. Thus, potential sources of the increased FPAS substances have been identified and include: the four WWTPs, an Air Force Base, two airports, and a paper factory. To investigate these potential sources, PFOA samples were taken in ng/L and a mass balance was calculated using samples with known flows. From this sampling, it was found that wastewater effluent accounts for about 90% of the total measured PFAS.

The second investigation explored 12 surface water sites on the Trinity River in Texas for both PFAS and sucralose. Sucralose was examined because it is used as a wastewater effluent tracer, is non-toxic, is highly persistent in wastewater treatment, occurs in high concentrations in wastewater effluent, and has consistent concentrations among WWTPs. The results of this investigation showed that PFAS concentrations peaked in the middle reaches of the Trinity River, which is downstream of an urban area, and then decreased due to dilution. Additionally, the trends found in the total measured PFAS showed a strong correlation to the measured sucralose in the river.

The two investigations were then used to develop a guidebook with seven steps to find and mitigate PFAS sources. This guidebook includes the potential benefits and limitations of various analytical methods. No analytical method explored in the guidebook provides low cost and high sensitivity, selectivity, and inclusivity. To choose the best analytical method, one needs to consider the desired level for each criterion. This information was used to develop screening tools for levels of PFAS in wastewater effluents or biosolids that indicate industrial sources.

PFAS and NPDES Permitting

Rebecca Christopher, EPA (presentation)

Rebecca Christopher presented the EPA's current strategy for addressing PFAS, especially the NPDES permitting strategy. She noted that PFAS has become a priority for the EPA since the Biden administration began in 2021. In fact, EPA Administrator Michael Regan started a PFAS council in April of 2021. By October of 2021 the council released the PFAS Strategic Roadmap that put forth a timeline for concrete actions from 2021 to 2024, fills a critical gap in federal leadership, supports states' ongoing efforts, and builds off the Biden-Harris Administration's commitment to restore scientific integrity.

R. Christopher outlined key actions in the PFAS Strategic Roadmap. They included the development of effluent limitation guidelines with updated rules and guidelines, water quality criteria recommendations to protect aquatic life, analytical methods, and ways to leverage NPDES permits to reduce PFAS discharge. The latter key action is the focus of the remainder of the presentation.

In December of 2022, the EPA issued a memo that integrated previous policies into a holistic NDPES response for all NDPES permitting authorities. The memo included recommendations for permit writers and pretreatment authorities as well as the steps they can take to under existing authorities when final criteria, methods, or ELGs are not available (as the commonly used tools are still in development). The memo is broken into two sections – one for industrial direct discharges and one for Publicly Owned Treatment Works (POTW). R. Christopher outlined these two sections.

R. Christopher explained the recommended permit conditions for direct industrial dischargers. The over-arching strategy starts with the identification of sources in the state-in-question and monitor to validate the location of these sources and understand the magnitude and type of PFAS associated with the source. The roadmap recommends monitoring with methods 1633 in conjunction with method 1622 (AOF). The location and monitoring results can then be overlaid with existing public health concerns to identify areas with the largest public health concerns. This can prioritize locations and develop an action plan to address the PFAS discharge.

Industries commonly associated with PFAS in wastewater discharge include organic chemical, plastics, and synthetic fiber production; metal finishing and electroplating; electric and electronic component production; landfills; pulp, paper, and paperboard production; leather tanning and finishing; plastics molding and forming; textile mills; paint formulation; and airports. Potential activities and changes that can be incorporated in the action plan that the memo highlights include BMPs, facility-level plans and reports, water quality-based effluent limits, technology-based effluent limits, and proactive and transparent public notification processes.

The second section highlights the recommended permitting conditions for POTWs. The general process recommended for POTWs is very similar to the process recommended for direct industrial dischargers, with the understanding that POTWs have their own end of pipe NPDES permits and all the industries that discharge into them. The process begins with establishing potential source locations and developing a monitoring plan to figure out where and in what concentrations PFAS is coming from. For POWTs this includes the creation or update of IU inventories by performing a PFAS-specific IU inventory. The memo recommends monitoring influent, effluent, and biosolids of the IUs in the inventory with method 1633 and 1621. Potential activities and changes that can be incorporated into the action plan includes incorporating monitoring requirements and/or local limits into IU control mechanisms, implementing local limits through BMPs, ensuring IUs are in ICIS and submitting data electronically, and notification of affected public water suppliers.

R. Christopher addressed questions she is frequently asked regarding NPDES permitting and PFAS. The first question was to address if method 1633 is the only method available. She

explained that while it is not required, it is the most reliable method available and if another method is used, permitters should take the time to carefully ensure reliability. The next question she pre-emptively answered was regarding recommended BMPs for PFAS reduction. These BMPs included product elimination and substitution, using PFAS-containing AFFF for emergencies only, cleaning and decontaminating equipment, replacing equipment, and implementing good housekeeping and spill-prevention practices.

Workgroup Updates

Early Warning & Emergency Response (EWER)
Doug Grimes, Fairfax Water
For the upcoming year, the EWER workgroup would like to focus on:

- Conducting a spill exercise, likely in the fall of 2023
    - The workgroup is looking into procuring funding to host an exercise, if none is obtained, they plan to do a smaller-scale in-house exercise
- Modify the spill-plan based on the results of the spill exercise
- Utilizing newly installed early warning instruments
    - Fairfax Water has a new portable GC with an in-situ probe
    - Fairfax Water and WSSC are testing some oil probes
    - Microtox Biomonitor, which was installed last year
- Keeping an eye on the sondes in the Monocacy.

Contaminants of Emerging Concern (CEC)
Brad Schmitz, Loudoun Water
The CEC Workgroup met on January 23rd, 2023, and has recently been working on:

- PFAS
    - The SB1013 project led to the Positive PFAS Sample Communications
    - The PFAS One Water toolkit can help with communication
- Microplastics
    - The HB1721 project has the workgroup studying the occurrence and reduction of microplastics.
    - ICPRB has worked to put together a whitepaper for sampling microplastics in non-tidal Potomac
- Gathering data and synthesizing results from UCMR5

Reaching Out
Lisa Ragain, MWCOG
Currently, the Reaching Out workgroup is focusing on:

- Building relationships and memberships within DWSPP
    - To do so, the workgroup wants to have an in-person meeting that is accessible to members that are farther away from Rockville and the WMA region
        - This may be a special meeting or inviting special guests to our in-person meetings
- Completing and publishing the Annual Report

Urban and Industrial Issues (UII)

Greg Prelewicz, Fairfax Water

The Urban and Industrial Issues workgroup met on December 8th, 2022, and has recently been working on:

- FIFRA/NPDES process as it relates to pesticide application
    - Primary regulation for air-application of pesticides is through FIRFA
    - Application to waterways is through NPDES Pesticide General Permit to waters of the US
        - Examples include Maryland General Permit No. 17-PE and Virginia Permit NO. VAG87
    - Relevant topic in the Potomac because MD has started Black Fly control application in the Fall of 2022 on the Potomac River
        - There was a conference call held on November 14th with the Department of Agriculture regarding this.
        - Conclusions of this call were/this call included:
            - EPA and WHO consider it safe for application to drinking water sources
                - Active ingredient is a bacteria that disrupts the pH of the organisms' gut, but safe for human digestive systems
            - Product applied is Vectobac AS
            - Meant for Black Fly control
            - Application area is in Washington Co, MD, on the Potomac River between Harpers Ferry and Brunswick in October 2022
            - The pilot program has been in place since 2016 and has occurred multiple times per year
        - This left the workgroup with the following questions:
            - If this has been in place since 2016 or 2017, why are we only now learning about this?
            - How/If the MD Dept of Agriculture coordinates chemical applications on the river with MDE's Drinking Water Program?
            - How are these permits for air application of pesticides on a drinking water source approved?
            - What are the non-active ingredients in the product?
- Reissuance of AMD discharge permit for Laurel Run Mining
- Establishing workgroup goals for 2023
    - Advise regulators about drinking water source concerns and impacts by monitoring, reviewing, and commenting on applicable NPDES permits/equivalent state discharge permits
    - Look for more standardization in NPDES permit language and establish a requirement for downstream entities to be notified of upstream spills in the basin
    - Continue efforts to research, monitor, and promote BMPs to reverse long-term salinization of drinking water sources

    - Prioritize urban and industrial entities based on proximity, density, potential for protection, potential for contamination, and other parameters to begin a dialogue on source water protection issues
    - Track information related to facilities of significance using WaterSuite Source Water Protection GIS tool when applicable
- EPA PFAS in NPDES permits and establishing additional guidance

Water Quality (WQ)
Niffy Saji, Fairfax Water

The Water Quality workgroup has been working on:

- Map PFAS monitoring locations in the basin to show locations of data collection and who is doing the collecting using publicly available data.
    - Each location also has a point of contact listed in a separate record.
    - The map will be updated until there is clarity on regulations and monitoring requirements.
    - The map will also be uploaded on the WQ workgroup page and sent out to other workgroups and chairs.
- Map sodium and chloride surrogate monitoring locations in the Potomac basin.
- Update existing map on HAB monitoring locations in the basin.
- Utility laboratory capabilities for raw water spreadsheet
    - REVIEW
    - Last updated in 2020

Agricultural Issues
Christy Davis, ICPRB
In the past quarter, the Agricultural Issues workgroup has focused on:

- The 2023 Farm Bill Reauthorization
- CSAWWA Source Water Protection Committee
    - This includes member from WSSC Water, MDE, and ICPRB
    - The committee meets with Maryland NRCS
- NWQI projects
    - Maryland
    - West Virginia

Administration Updates
Christy Davis, ICPRB
Administrative updates noted at the February 1, 2023, DWSPP meeting include:

- 2023 invoices have been sent out to DWSPP members
- The next quarterly meeting is May 3rd, 2023, with some meeting location options:
    - ICPRB Office in Rockville, MD
    - Off-site in Frederick, MD