National Drinking Water Advisory Council (NDWAC)
Public Meeting
December 4-5, 2019

Location:
U.S. Environmental Protection Agency Headquarters
1200 Pennsylvania Avenue NW
William Jefferson Clinton (WJC) South
Room 6226
Washington, DC 20004

Meeting Summary

Meeting Purpose

The purpose of the meeting was to allow the EPA to present an overview of the Agency's Safe Drinking Water Act (SDWA) programs for the fiscal year 2020 and to consult with the Council on a National Primary Drinking Water Regulation for perchlorate and on revisions to the Lead and Copper Rule.

Day 1: Wednesday, December 4, 2019

Opening and Welcome

Ms. Elizabeth Corr, the Designated Federal Officer (DFO) for the National Drinking Water Advisory Council (NDWAC), opened the public meeting[1] and highlighted the NDWAC's role as an independent expert federal advisory committee chartered under the authority of the Federal Advisory Committee Act (FACA). The NDWAC or "Council" is authorized under the Safe Drinking Water Act (SDWA) and provides independent advice to the U.S. Environmental Protection Agency (EPA) Administrator on drinking water and ground water issues. The NDWAC consists of special government employees appointed to their positions by the EPA Administrator, making them subject to all applicable ethics laws and implemented regulations. EPA has determined that advisors participating in this meeting have no financial conflicts of interest or appearance of a lack of impartiality under the ethics regulations, as they relate to the topics of this meeting.

[1] See Attachment A for a list of NDWAC members and Attachment B for a list of meeting attendees

FACA and EPA policies require NDWAC meetings to be announced to the public in the *Federal Register* and any substantive deliberations and interactions with the EPA and the public are to be conducted in open sessions where a DFO is present to ensure that the requirements of the FACA are met. In accordance with the FACA, the public was given an opportunity to register and provide verbal comments during the public comment period on Wednesday, December 4 from 11:00 am - 12:00 pm.

Ms. Carrie Lewis, the NDWAC Chair, thanked attendees and noted that the Council included four new members:

- Scott Borman, Benton/Washington Regional Public Water Authority;
- John Brady, Central Coast Water Authority;
- Lisa Daniels, Pennsylvania Department of Environmental Protection; and
- Jeffrey Tiberi, Retired, Montana Association of Conservative Districts and Member, Lewis and Clark County Outdoor Air Quality Advisory Committee.

Ms. Lewis also noted that two council members would not be attending:

- Randy Moore, Iowa American Water Company; and
- Mac Underwood, Retired, Birmingham Water Works.

Ms. Lewis stated that the NDWAC consists of 15 representatives from public, state, and local agencies and private groups with a common interest in safe drinking water, public health, and sharing their expertise with EPA. The NDWAC is a diverse group, with every member bringing expertise, and has played an important role in many EPA decisions. The Council members then introduced themselves and identified their organizational association.

Overview of National Drinking Water Program Fiscal Year 2020 Priorities

Ms. Jennifer McLain, Director of the Office of Ground Water and Drinking Water (OGWDW), thanked Ms. Lewis and Ms. Corr for their work on the NDWAC meeting and for the EPA. Ms. McLain welcomed the new Council members to the meeting and noted that she looked forward to hearing the Council's advice and recommendations to the EPA.

Ms. McLain stated the importance of the Lead and Copper Rule (LCR) and the Lead Free Rule. Reducing lead in drinking water is a top priority for EPA and EPA has many activities underway. The proposed updates to the LCR released in October identify the communities most at risk and require water systems to respond in a way that reduces the levels of lead in drinking water. EPA anticipates finalizing the Lead Free Rule in early 2020. Ms. McLain noted that EPA priorities also include the Per- and Polyfluoroalkyl Substances (PFAS) Action Plan, and many other topics including *Legionella*.

Standards and Risk Management Division Program Update

Mr. Eric Burneson, Director of the EPA's Standards and Risk Management Division, presented updates on the Division's activities, including the Contaminant Candidate List (CCL), Unregulated Contaminant Monitoring Rule (UCMR), regulatory determinations, microbials/disinfection byproducts (MDBP) and *Legionella*, Six-Year Review, PFAS activities, and the "lead free" rule. To view the presentation, please see the public meeting materials on EPA's website at: https://www.epa.gov/ndwac

NDWAC Discussion, Questions, and Comments

Council members provided the following feedback regarding the Standards and Risk Management Division program update.

- Ms. Sarah Pillsbury asked what EPA has found under the UCMR 4.
  - Mr. Burneson responded that significant levels of contaminants are not being found. This could be an indication of the success of UCMR and improved and enhanced operations and treatment centers. He noted that through two seasons of data, high levels of cyanotoxins have not been observed as they have in previous years. UCMR results have shown manganese at elevated levels in some locations that has raised concerns. Manganese is a naturally occurring contaminant that most systems find. EPA developed risk communication messaging that it shared with states at the request of the Association of State Drinking Water Administrators (ASDWA). Note that the most recent UCMR 4 results are available at: https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule

- Ms. Lisa Daniels commented that the minimum reporting level of 0.3 micrograms per liter for cyanotoxins is problematic because the health advisory for young children is at this same level.
  - Mr. Burneson responded that the minimum reporting level was established based upon round robin laboratory testing to see how low the laboratories could reliably measure levels of contaminants using the method. For the ELISA method, 0.3 micrograms per liter was the lowest level to still expect quality results. However, as labs become more acquainted with methods, detection is more accurate.

- Ms. Pillsbury inquired about what the MDBP review would entail. It was described as a multi-year process including significant stakeholder engagement.

- Mr. Scott Borman asked if there was a potential to deal with chloroform. This will involve broader stakeholder actions. There is lots of new information.
  - Mr. Burneson noted that EPA will consider available information.

Legionella

- Ms. Daniels stated that she is glad to see *Legionella* in the MDBP group review, but it does seem behind on available data. Ms. Daniels asked if *Legionella* would be added to UCMR 5.
  - Mr. Burneson responded that *Legionella* is among the contaminants being considered for monitoring for the UCMR 5. *Legionella* is a challenging opportunistic pathogen, especially from a water quality monitoring perspective. *Legionella* interacts with biofilms and can thrive in biofilms both in distribution systems and premise plumbing systems. There are still a number of unknowns as to how to establish legionella monitoring requirements and interpret results.

- Ms. Daniels noted that method development for *Legionella* was behind and there are not reliable methods available. Washington State conducted a special study with Mark LeChevallier and has published method reviews.
  - Mr. Burneson responded that EPA discussed legionella methods at the July 2019 stakeholder meeting (see presentation materials at https://www.epa.gov/dwucmr/development-fifth-proposed-unregulated-contaminant-monitoring-rule-ucmr-5-public-water).

- Ms. Lewis noted that the Lead and Copper Rule was the first rule that brought water utilities into the realm of premise plumbing. *Legionella* also often occurs outside of areas over which EPA has jurisdiction. She asked how to close that gap between the public water system and premise plumbing.
  - Mr. Burneson replied that this is one of the complexities of *Legionella. Legionella* exists in the regulated public water distribution systems and in the unregulated building water systems. Mr. Burneson noted that there are actions water systems can take to address *Legionella* including effective treatment of the source water and maintenance of a disinfectant residual.

Per- and polyfluoroalkyl substances (PFAS)

- Mr. William Alley commented about risk communication and how it affects the group. He noted the current perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid

(PFOS) health advisories and asked if EPA was looking at a total for PFAS in the regulations. Mr. Alley asked about cumulative risk assessments and toxicity.
  - Mr. Burneson responded that the Agency has said in the health advisory for PFOA and PFOS that officials should sum the values of PFOA and PFOS and use the combined value to compare to the health advisory level but that EPA does not recommend including other levels of other PFAS in the comparison.
  - Ms. McLain noted that EPA is collaborating with the National Toxicology Program (NTP) at the National Institute of Environmental Health Scientists (NIEHS) to evaluate potential methodologies to group PFAS based on structure, the results of in vivo assay toxicity testing and other information. This will help determine which PFAS are similar and may have similar health effects.

- Mr. Alley noted the importance of keeping in mind homeowners with private wells.

- Ms. Daniels asked if the proposed PFOA and PFAS regulatory determination would be released this year.
  - Ms. McLain responded that once the public comments are received, EPA will do a review of the comments and develop the final determination. EPA is unsure of the exact timeline, but the intent is to be as expeditious as possible.

- Ms. Daniels expressed concern with the length of time it takes for the SDWA regulatory process to complete a regulation and asked if the agency would be receptive to a sub core group on the NWDAC to propose changes to the SDWA.
  - Ms. McLain responded that EPA is not in the position to give legislative recommendations, but that state programs can have that conversation if desired.

- Ms. Daniels asked if there was information available on proper disposal or sending to incinerators this year.
  - Ms. McLain noted that researchers are investigating disposal methods such as incinerators and landfills.

- Ms. Lewis and Mr. Burneson discussed the PFOA and PFOS health advisories. The health advisories were determined using a relative source contribution (RSC) of 20%. This assumes 80% of exposure comes from non-drinking water sources and 20% from drinking water.

Drinking Water Protection Division Program Update

Ms. Anita Thompkins, Director of EPA's Drinking Water Protection Division, welcomed and thanked those in attendance. Ms. Thompkins provided an update for the Drinking Water

Protection Program during the past year, including updates on implementation of America's Water Infrastructure Act (AWIA), infrastructure including the Drinking Water State Revolving Fund (DWSRF), collaborative oversight, source water protection, and ground water protection. To view the presentation, please see the public meeting materials on EPA's website at: https://www.epa.gov/ndwac

NDWAC Discussion, Questions, and Comments

Council members provided the following feedback regarding the Drinking Water Protection Division program update.

- Mr. Borman asked about the consolidation of systems and if noncompliant systems will be forced to consolidate. He suggested providing flexibility, other means of partnership, and stakeholder engagement. He noted one big drawback for the SRF is the long time it takes to receive funds. It takes a year to get money from the SRF. Streamlining the money in the states would be more flexible and would allow the funds to disperse quicker.
    - Ms. Thompkins replied that if the water systems want to partner with another system, that they are able to do so, but that does not mean they are required to consolidate physically. She noted that they are in the early stages of the water system restructuring rule. In general, the Drinking Water SRF program's objectives are about maintaining compliance. The DWSRF is very project based, ensuring the funds go where needed. The DWSRF funds are not for operation and maintenance but do support maintaining compliance.

- Mr. Wilmer Melton agreed with Mr. Borman and noted the importance of streamlining funds from EPA. This will allow the funds to be better utilized.

- Mr. Melton inquired if with the use of the drinking water SRF funds, if systems are resistant to consolidation, does it affect the drinking water revolving funds.
    - Ms. Thompkins acknowledged that under the Safe Drinking Water Act the system has to have technical, managerial and financial capacity in order to get DWSRF funding. If a system does not have capacity, the state may use DWSRF set-aside funds to assist with capacity development. There are also technical assistance providers that can go to the system to help them apply for a loan. Projects are ranked on the state's Intended Use Plan (IUP) using the state's criteria. States use different processes. A factor states can consider when ranking projects is the need of the system.

- Mr. Saied Kasraei asked about the definition of water rights and water allocation. He noted that if the allocation is for future growth or growth beyond the normal trend, the

SRF could not be used for that purpose. He also noted that including the cost of lead service line replacement in the upcoming Needs Survey could shift the current funding allocation trend. States with older industrial cities could see an increase in their total infrastructure needs by including the cost of lead service line replacement in their next Need Survey. In addition, some states like Maryland may already have an inventory of the existing lead service lines from conducting a statewide survey, while some states may not, and consequently not ready to provide accurate data for the next survey. The inability to provide accurate and consistent data could create a funding disparity among the states. It is recommended that EPA provide a clear guideline on how the data should be collected.

- Ms. Thompkins noted regarding water rights that people may need to be able to access water from different areas. She acknowledged that the DWSRF funds cannot be used for growth. She also acknowledged that some systems may be further along in identifying lead service lines and developing their inventory than others.

- Ms. Pillsbury wondered if there was the opportunity for additional grant money and getting funding approved from Congress. She also noted the challenge of understanding the term "underserved communities".
  - Ms. Thompkins responded that the definition of disadvantaged communities is determined under the DWSRF program definition by each state. There are multiple parts to the definition of underserved communities. For the grants, EPA has FY18 and FY19 appropriations but is currently unsure of FY 2020.

- Ms. Pillsbury and Ms. McLain discussed Consumer Confidence Reports (CCRs). Ms. McLain noted that communication is a priority; EPA has a number of resources on the website for systems to use. Under the law, systems are required to certify distribution of their CCRs. She noted they are in the initial stages of the new rulemaking, so they do not have much more information to provide at this point.

- Ms. Daniels noted that her state's program uses the SRF set-aside grant to fund a contract (Professional Engineering Services – PES) for contractor/engineering services to assist systems with feasibilities studies, completing PENNVEST funding applications, etc. The PES program is listed in the work plan and more information is provided in our Cap Dev strategy and reports. Furthermore, she thanked EPA for the clarification on lead service line and operator workforce survey questions.
  - Ms. Thompkins responded that the survey is for EPA to gather information and identify needs. The information about workforce needs will help inform and shape efforts to support the water sector workforce, which is a key priority.

- Ms. Lewis noted that there is a lot of required text in the current CCR and she stressed the importance of improving the language, not just adding more. She also noted the importance of allowing utilities to customize the messages based on water quality and the audience.

- Mr. Jeffrey Tiberi volunteered to provide a review of the source water protection program integration and overlap tool, also known as the crosswalk tool, under development, which is intended to help water systems understand the nexus between source water assessments and potential funding under the Farm Bill.

Public Comment Period

On Day 1, December 4, 2019, the Council members heard public comments from registered commenters:

- Mr. Jeff Tanner, President and Chief Technical Officer, Flow-Liner Systems, Ltd.
- Mr. Carl Reeverts, on behalf of the Environmental Protection Network.
- Mr. Steve Via, on behalf of the American Water Works Association.

These and other comments received in writing were circulated to Council members. To view the comments, please see the public meeting materials on EPA's website at: https://www.epa.gov/ndwac

National Water Reuse Action Plan

Mr. Jeff Lape, National Program Leader for Water Reuse, introduced and provided updates on the National Water Reuse Action Plan. To view the presentation, please see the public meeting materials on EPA's website at: https://www.epa.gov/ndwac

NDWAC Discussion, Questions, and Comments

Council members provided the following feedback regarding the National Water Reuse Action Plan.

- Mr. John Brady commented on what he saw in California, stating all wastewater projects need to economically dispose of their treated effluent. He brought up how some projects that he has observed in California have attempted to classify the management of treated effluent as "disposal" rather than as "re-use" as a means to reduce the level of required

treatment and monitoring. Direct and indirect potable re-use projects have very clear treatment, monitoring and locational requirements that have been developed over time to protect public health. These requirements represent a significant expense and create the pressure to classify projects as disposal rather than reuse. To mitigate this pressure, the definition of a reuse project needs to have clear objective metrics to help to clearly classify the project and minimize this issue. Potential metrics to consider include (1) what percentage does the effluent represent for total recharge to the groundwater basin, (2) what percentage does the effluent represent for total river flow/surface water, and (3) what percentage of water extracted from the groundwater basin or surface water is of wastewater origin. These clear metrics will minimize political influence over project classification. In essence, it is important to require that each project be evaluated based on the engineering and science and reduce political influence as much as possible.

- Mr. Brady also commented that the number of chemicals that have established Maximum Contaminant Levels is in the one hundred range and a typical wastewater stream will have thousands of chemicals. He also noted that there are numerous chemicals that will not be removed by tertiary wastewater treatment. Consequently, detailed analysis of each project focusing on the impact to public water supply is certainly prudent and necessary.

- Mr. Borman mentioned that as a water provider in the south, he would like to thank EPA for taking on the challenge of the National Water Reuse Action Plan.

- Ms. June Swallow commented that in Rhode Island there is no capacity to deal with water reuse. It is a large hurdle to overcome. She noted reuse could be a good plan, but they need more information on the topic.
  - PFAS illustrates some of the concerns.
  - Mr. Lape responded that communities who do reuse tend to have source control investigation and source management.

- Dr. Vincent Hill acknowledged that he is pleased to see that public health is a guiding principle. The first thing people think about the plan is to wonder if it is safe or healthy. The science needs to be made clear He noted they are excited to be a part of the reuse plan and are willing to do whatever they can do to help.

Consultation on Revisions to the Lead and Copper Rule

Mr. Eric Burneson, Director of the EPA's Standards and Risk Management Division, and Ms. Lisa Christ, the Targeting and Analysis Branch Chief, provided an overview of the EPA's proposed Lead and Copper Rule revisions. To view the presentation, please see the public

meeting materials on EPA's website at: https://www.epa.gov/sites/production/files/2019-12/documents/technical_brief_lcr_proposed_revisions.pdf

NDWAC Discussion, Questions, and Comments

Council members provided the following feedback regarding the proposed Lead and Copper Rule (LCR) revisions.

Trigger level

- Ms. Sarah Pillsbury asked what happened to the household action level.
  - The EPA did not propose a household action level; however, Mr. Burneson responded that the Agency has proposed a trigger level of 10 parts per billion (ppb) to compel water systems to take progressive tailored actions to plan upgrades to aging infrastructure and reduce levels of lead in drinking water. EPA evaluated the information and proposed 10 ppb as threshold that prompts water systems to take action. Mr Burneson noted that 10 ppb was a threshold that the Association of State Drinking Water Administrators had suggested as a trigger for actions.

- Ms. Lisa Daniels stated they (the Association of State Drinking Water Administrators) looked at 5, 10, and 15 ppb. The concept makes sense, so people will avoid going above 15. There are several things in question that they must go back and re-evaluate. Ms. Daniels noted that more detail was needed on the re-evaluations.

- Mr. Scott Borman stated that, as a regional provider, it is not uncommon to have just one or two systems that have lead/copper issues in them as consecutive systems. Consequently, if the trigger level occurs in a consecutive system to the regional provider (1 in 18 systems) it could require additional treatment like ortho-phosphate addition by the actual supplier instead of requiring action by the consecutive system in non-compliance. That is why he is in favor of a mandatory replacement schedule.

Lead Service Lines

- Mr. John Brady commented that he likes the publicly available lead service line inventory. However, he felt that EPA should go further and make notification during a property transfer or rental a requirement. He noted that if it is discoverable during the sale or rent of homes, it may cause immediate action by the homeowner. He also stated that based on his experience while working with the Bank of America Environmental Due Diligence Program in the early 1990's, it is highly likely that the notification of lead contaminating equipment on the property during a property transfer or rental will impact

property value and rental value and this will be the driving force to remove the contaminating equipment. It is reasonable to require a seller or lessor to inform the buyer or renter about the presence of equipment know to release lead into the property's water system. Mr. Brady also asked how homeowners can be removed from the inventory list once the lead contaminating equipment is removed.

  - Mr. Burneson responded that he wanted to highlight that EPA proposed that systems will have to make their lead service line inventory publicly available and that general location information be provided about the lead service lines such as the street name but not the address. Mr. Burneson noted that the Agency is requesting comment on whether water systems should provide the specific address information as a part of the inventory. Mr. Burneson further noted that water systems would be required to update the inventory annually.

- Ms. Carrie Lewis asked council members what information the inventory should include and also asked for input on whether the addresses of buildings with lead service lines should be in public information.

- Ms. June Swallow noted privacy issues with presenting information about private property.

- Mr. Wilmer Melton noted concern with identifying individuals' addresses in publicly available inventories but noted that the information could be provided at the point of sale or rent.

- Ms. Daniels noted that there needed to be data management changes with the proposed revisions to tap sampling. She stated that the public needs to understand when the timeclock for 24-hour notification begins – it begins after the end of the monitoring period when all samples have been submitted and compliance with the action level (i.e., 90^{th} percentile calculation) is determined. She also asked how the information would be provided to schools and day cares.

- Mr. Saeid Kasraei stated that sampling points are not defined in the process. He said that currently, a very large water system has the option to collect all of their required 100 samples (or 60 samples for reduced monitoring) from one area, i.e. same zip code even though the water system may serve more than 50 zip codes. He recommended that the sampling points be required to cover the whole service area. There needs to be more guidance or clarification.

- Mr. Borman noted that in colder climates, the front hose bib is not used often and is not a representative water sample.

- Mr. James Proctor asked why there was disclosure for lead paint but not water and asked if there has been coordination with the Department of Housing and Urban Development.
    - Mr. Burneson responded that EPA has worked with HUD officials, but the focus of those discussions has been on identifying potential sources of funding for lead service line replacement.

Corrosion control treatment

- Ms. Daniels commented that there is a huge difference between desktop studies and pipe loop or feasibility studies. Regarding the review of corrosion control treatment as a part of sanitary surveys, she thinks a review of water quality parameter (WQP) data can be done by inspectors performing the sanitary surveys, but if the corrosion control technology (CCT) evaluation required a more technical review/feasibility study, it would have to be done by engineers outside of the sanitary survey process. In Pennsylvania, field inspectors are not engineers. When it comes to more technical evaluations of corrosion control treatment, it would require the use of engineers.

Find and Fix

- Ms. Daniels reported that they need more information on how exactly Find and Fix works. The supplier may not be comfortable performing the sampling in the customer's home. Ms. Daniels stated there are many questions surrounding the actions the water supplier must take to fix the cause of elevated lead versus the actions the homeowner must take.

- Mr. Borman pointed out that Find and Fix has been going on for a long time. They are still held responsible even when residences are found out of compliance. He added that the Lead and Copper Rule puts them in a difficult situation where they have to choose between two equally unpleasant courses of action. It is easy to make replacements on site.

- Ms. Swallow acknowledged that at first, she thought Find and Fix meant if you find the lead service line, you will fix it, but has realized it's about optimizing the protocol treatment in that area. She asked if the water system was responsible for a full replacement where the consumer was willing to allow access and allow the full replacement to be done but would not pay for it.
    - Mr. Burneson responded that if the consumer refuses to replace private plumbing, then the water system is not compelled to replace it by the proposed regulation.

- Ms. Lewis noted that even with a thorough investigation, sometimes the source of the lead might not be able to be identified and that the rule should allow for this possibility without penalty to the water supplier. Also, not all utilities are permitted by their local rules to themselves inspect internal plumbing, but those may be allowed to contract with others, e.g., plumbing inspectors, to do so. The language should reflect that the utility has the responsibility to see that the inspection is conducted but not that the utility itself needs to do it.

- Ms. Daniels noted that with Find and Fix they are required to conduct follow up testing. She acknowledged that they already receive thousands of compliance sampling results. Any follow-up non-compliance samples would have to be clearly identified to make sure labs and states do not get them confused with other compliance sampling results when calculating compliance. In addition, she noted that there are three rule provisions that could trigger an evaluation of CCT (find and fix, trigger level, and action level) and they will be looking at how those requirements inter-relate.

Lead service replacement

- Mr. Proctor noted that he understands it makes sense to get away from partial replacements but wondered about the efficiency of a situation where homeowners who are compelled to replace their portion of a service line because their property value is going down, and those decisions are made randomly across a system, but that decision triggers an obligation by the utility to replace its portion on the homeowner's timetable.
  - Mr. Burneson noted that the water system would be required to replace the publicly owned portion of a line if the homeowner decides to replace the privately-owned portion of the line.

- Ms. Lewis brought up concern with the wording in the proposal and acknowledged that twice they have talked about how the utility must replace the customer's portion. In some jurisdictions, utilities are prohibited from working on private property. However, they can hire others to do so. Ms. Lewis requested changing "utilities must" with language to the effect that the utilities are responsible to ensure that the work is done but the utility itself is not required to perform the actual task.

Notification and public education

- Mr. Kasraei questioned the 24-hour notification requirement on lead action level exceedance. He suggested that the proposed short time frame, besides being problematic, gives the false impression that lead is an acute contaminant. He suggested that a 72-hour time frame may be more appropriate.

- Ms. Alexandra Campbell-Ferrari asked if EPA had considered using more visuals. She noted that the trigger level is very new to people and may be confusing, especially if the public finds out without a reasonable timeframe. EPA should carefully consider the form and manner of delivery for the 24-hour notification.

Small systems flexibility

- Mr. Borman emphasized that they should keep as much flexibility with small systems as possible. He noted education and training for small systems would be huge. Mr. Borman stated that EPA should consider taking out the point of use treatment as an option. Smaller systems may not be allowed access for testing and may not be able to afford it.

- Ms. Pillsbury added that point of use is inappropriate except for very, very small systems and even in such systems (e.g., 25 persons population) where New Hampshire has allowed it, it often does not achieve compliance. While it is seemingly inexpensive, they have also found it to be ineffective and ultimately results in eventually requiring system-based treatment.
    - Mr. Burneson responded that they have proposed the flexibility to be 10,000 or fewer; EPA proposed point of use treatment as one of three choices and there is not a mandate for small systems. EPA expects that the smallest systems of the small systems will select the point of use option. EPA is also requesting comment on whether the flexibility provisions should be limited to systems serving fewer than 3,300 as an alternative to the proposal.

- Ms. Daniels stated that in her state of Pennsylvania, point of use is not allowed.

Sampling and education at school and childcare facilities

- Ms. Daniels noted the importance but stated that water systems do not have the authority to enter schools for testing or to undertake actions to remove and replace leaded plumbing. Ms. Daniels stated It may be more effective for other agencies such as the Department of Education to pursue requirements for testing in schools and child care facilities.

- Mr. Kasraei acknowledged that in Maryland, they have already started testing public and nonpublic schools. They have also considered collecting samples from child care centers. Mr. Kasraei noted it is difficult to define what day care centers are; mainly because some are licensed and some are not.

- Ms. Pillsbury stated that, concerning mandatory state programs, as written, only states using the 3Ts would be exempt. Tying sampling to this document rather than allowing the required public water system sampling protocol should be the state's choice. In other words, there needs to be an off ramp associated with meeting the goal and not stipulating how it must be done.

- Mr. Melton commented that child care facilities, especially small ones regulated by zoning, are going to be complicated because they are small and difficult to identify.

- Ms. Swallow added that they have tested at public schools, but day cares do not want to allow testing. There are concerns with handling the data.

- Ms. Campbell-Ferrari noted the importance of reducing exposure as well as educating consumers and providing options. This includes making information available to the students, the parents, and the staff at schools. The form and manner of the delivery of information are important so that those affected can make the best decisions for their health and safety.

- Ms. Daniels noted that lead in water is important, but there are also other environmental factors (such as asbestos) that should be considered in the schools and child care settings.

Lead in Drinking Water: Partners and Funds

Ms. Thompkins provided updates on partnerships and sources of funding to assist with addressing lead in drinking water. To view the presentation, please see the public meeting materials on EPA's website at: https://www.epa.gov/ndwac

NDWAC Discussion, Questions, and Comments

Ms. Thompkins stated in response to interest from Council members that she would provide links to the new EPA /U.S. Department of Housing and Urban Development (HUD) website on lead service line replacement; the website for the October 2019 Memorandum of Understanding (MOU) partnership to focus attention on testing for lead in drinking water for schools and child care facilities; and EPA's websites with information about potential funding sources for lead service line replacement and for schools and child care facilities.

- For information on the EPA/HUD collaboration on lead service line replacement visit: https://www.epa.gov/ground-water-and-drinking-water/lead-service-line-replacement

- For the Memorandum of Understanding on Reducing Lead Levels in Drinking Water in Schools and Child Care Facilities visit: https://www.epa.gov/ground-water-and-drinking-water/mou-reducing-lead-levels-drinking-water-schools-and-child-care

- For information about funding for lead service line replacement visit: https://www.epa.gov/ground-water-and-drinking-water/funding-lead-service-line-replacement

- For information about potential funding sources for reducing lead in drinking water in schools and child care facilities visit: https://www.epa.gov/dwcapacity/funding-sources-schools-and-child-care-facilities

Day 2: Thursday, December 5, 2019

Health Advisory Update

Ms. Betsy Behl, Health and Ecological Criteria Division Director, Office of Science and Technology, provided an update on health advisories.

Ms. Behl noted that this year, EPA has devoted a lot of time to UCMR, CCL 5, and final recommendations and conclusions for cyanotoxin in recreational waters. She noted that it has been a busy year, and although EPA is working on health advisories, it has not been at the top of the list. She reviewed the three recommendations from the NDWAC:

- Regular opportunities for EPA to provide updates on the current health advisories and regular opportunities for stakeholders to provide input. Ms. Behl noted that EPA's ability to move faster on this is constrained by competing priorities. EPA has completed a series of interviews with many stakeholders including AWWA and ASDWA.
- A digitized table with a summary of risk assessments in plain language. Ms. Behl noted that one of the most recent requests was for Molybdenum.
- A single point of contact for health advisory. Eric Burneson, Jamie Strong, and Britney Jacobs are working to provide greater transparency on the steps involved in health advisories and status updates.

EPA would like to update the Integrated Risk Information System (IRIS) website. The Agency has been updating and reinvigorating a group called Federal-State Toxicology and Risk Analysis Committee (FSTRAC) for more detailed conversations about toxicology and the science behind

updated assessments. FSTRAC is Federal-State Toxicology Risk Analysis Committee. EPA is currently updating the steering committee and membership of the group.

Ms. Behl noted that EPA is willing to provide updates more frequently and to have communication with stakeholders. She reviewed the draft toxicity assessments for GenX and PFBS. EPA received public comments and is working on a response. Next steps include a peer review, review by OMB technical work group, and outreach to states. EPA's goal is to publish the final GenX toxicity assessment in the fall of 2020 and PFBS in the spring or summer of 2020, depending on peer review.

There is also ongoing work on five other PFAS chemicals that went out for review in November 2019. The five chemicals are PFBA, PFHxA, PFHxS, PFNA, PFDA.

NDWAC Discussion, Questions, and Comments

Council members provided the following feedback regarding the Health Advisory Update:

- Ms. Daniels asked to revisit the conversation about toxicology values versus health advisory levels. Pennsylvania is not able to do anything with toxicology values; their organization only recognizes health advisories. They have used them for 20 years and stopping at toxicology values does not get them where they need to be.
    - Ms. McLain responded that they could revisit and review the question. EPA heard from many states, and some of the other states prefer toxicology values. The toxicology values would be the first step in developing a potential health advisory.

- Ms. Daniels asked how much more work and effort would it take to translate the toxicity value to a health advisory.
    - Ms. Behl responded that calculation of toxicology values is a straightforward process. The actual publishing takes a little longer.

- Ms. Swallow stated that she wanted to touch on the topic of PFAS risk communication. From the public's point of view the health advisory is the safe level and the risk is zero below the health advisory and 100% above the health advisory. She noted they will need more assistance with communicating risk and discussion about what is safe. There needs to be a shared understanding of what "safe" means.
    - Ms. McLain responded that they agree risk communication is an important topic to work on and not easy. There are many factors that need to be understood. EPA is planning to develop a risk communication toolbox.

- Ms. Pillsbury stated she knows there has been hesitancy around issuing PFAS health advisories. She agreed with Ms. Behl's comment that the calculation is straightforward but noted that the lack of EPA making that calculation has resulted in no two states with the same health-based number to guide drinking water decisions. She asked Ms. Behl to review the schedule for creating new PFAS tox values.
    - Ms. Behl replied the first reviews (for GenX and PFBS) went out in November 2018 and hopes that they will be final in 2020, so overall it takes a few years.
    - Ms. Pillsbury noted that they thought that two (PFOA and PFOS) of the five PFAS mentioned had enough data to move forward with an MCL. They are the most data rich of the PFAS.

- Ms. Pillsbury asked what is the status of the Federal-State Toxicology Risk Analysis Committee (FSTRAC).
    - Ms. Behl replied they are looking for new members.

Water Workforce Initiative

Ms. Yu-Ting Guilaran, OGWDW Acting Deputy Director, provided an update on the Water Workforce Initiative. Ms. Guilaran noted that the sector has difficulty retaining a qualified workforce. One third of the workforce is scheduled to retire in the next few years. EPA's Assistant Administrator for Water Dave Ross has stated that maintaining a skilled workforce is a priority, including addressing increasing wages, training, and competition across other industries.

Multiple stakeholders, including the American Water Works Association (AWWA), are partnering to coordinate across multiple programs and tackle this issue. EPA's role is first to identify ways to help maintain a viable workforce and raise awareness of water sector jobs. Federal leadership is collaborating to help build the workforce and bolster water careers and outreach to make it a career of choice. EPA has worked with the Department of Labor and water sector partners to develop a competency model for water sector careers. In 2016-2017 the National Rural Water Association began developing an apprenticeship program based on the competency model. EPA has worked with the USDA's Rural Development (USDA RD) to develop training, Workshop in a Box. USDA RD has provided six million dollars to build the apprenticeship program.

EPA is also finding ways to forge new federal partnerships and provide federal leadership to bolster water careers to make them a career of choice and retain water sector workers. EPA is working with the Department of Education to help ensure the availability of water sector education and training programs in rural community colleges. The Department of Education has many established programs to support worker training and vocational education, including the

Perkins grant and loan programs for students and schools. The Department of Labor (DOL) is also helping to support apprenticeship programs and working to retain jobs and increase women in the workforce. The DOL provided $1.5 million to develop apprenticeship grants to increase women employees in nontraditional occupations. EPA is also working with the Department of Veterans Affairs on a memorandum of understanding (MOU) to connect qualified disabled veterans to career opportunities in the water sector. EPA has also worked with the Department of Defense and Military Occupation Specialists.

NDWAC Discussion, Questions, and Comments

Council members provided the following feedback regarding the Water Workforce Initiative:

- Mr. Borman asked if there was movement towards getting a national certification for water operators. Problems could arise when going to another state.
  - Ms. Guilaran responded that regions may have different needs. For example, California has different needs due to wildfires and droughts. There needs to be an understanding and balance on the issue.
  - Mr. Borman responded there are many ways this can be handled so that a user will not have to retest when going to another state.

- Mr. Brady commented that public employees in California, due to changes in retirement and health insurance benefits, are not willing to change employers. This is due to employers offering significantly reduced health insurance and retirement benefits to new employees. Consequently, the pool of qualified operators to recruit from is further reduced. He asked if EPA was addressing the increasingly difficulty in recruitment of qualified water system operators and wondered if there was a database available to locate certified staff.
  - Ms. Guilaran responded that AWWA has a Work for Water page (https://www.workforwater.org/), which is a one-stop shop for employees and hiring in the water sector.

- Ms. Daniels asked if the grant programs were available now, including the rural community college grant applications.
  - Ms. Guilaran responded that timeframes are on the Department of Education's Perkins Collaborative Resource Network website (https://cte.ed.gov/).

- Ms. Swallow commented that drinking water operators are poorly paid and that it is not a very marketable career choice for young workers.

- Ms. Lewis acknowledged that shift work poses an additional challenge to finding workers.

- Mr. Borman stated that he disagreed and that pay is increasing for water operators in Arkansas, especially in areas with high growth. They have operators coming in with no experience that start out making $15-$17/hr. Operators are making $70,000 and the wages are going up. He noted that he agrees with Ms. Lewis about shiftwork being difficult and they are looking into changing the schedule.

- Mr. Borman also stated that utilities should be coordinating and working with high schools, community colleges, and universities with regard to actual drinking water curriculum and those same utilities need to be offering Internships and other training. The key is getting the word out to prospective young employees and show them that they can make a good career in the drinking water industry.

- Mr. Melton acknowledged that last year they increased pay for operators three times in one year, which is unheard of. When they increase their pay, it makes other bordering associations increase their pay as well. His concern is starting programs early in education – many do not recognize the technology involved with operating. He emphasized they need to do a better job of displaying what operating offers on the career level. The sustainability and stability is a lot better than you would see in some private sectors.

Consultation on a National Primary Drinking Water Regulation for Perchlorate

Mr. Eric Burneson, Director of the EPA's Standards and Risk Management Division, provided an overview of the EPA's proposal for a National Primary Drinking Water Regulation (NPDWR) for perchlorate. To view the presentation, please see the public meeting materials on EPA's website at: https://www.epa.gov/sites/production/files/2019-12/documents/ndwac_perchlorate_consultation_presentation_december_2019__0.pdf

NDWAC Discussion, Questions, and Comments

Council members provided the following feedback regarding a National Primary Drinking Water Regulation for perchlorate.

- Mr. William Alley noted the health advisory of 15 parts per billion (ppb) for ground water cleanup, which connects to Superfund. California and Massachusetts have dealt

with a lot of perchlorate and their standard is in the single digits. He asked how this factored in when EPA does not have a standard for perchlorate.
  - Mr. Burneson responded that Massachusetts and California do have drinking water standards. California's maximum contaminant level (MCL) is 6 ppb and Massachusetts' MCL is 2 ppb. These state standards were promulgated a number of years ago. EPA issued the interim health advisory for perchlorate of 15 ppb in 2008. EPA's Office of Land and Emergency Management has a preliminary remediation goal of 15 ppb based upon the health advisory.

- Mr. Scott Borman commented that after going through the publication, from the utility standpoint, he is troubled with the fact that it needs regulation when perchlorate does not affect enough people. He believes EPA should withdraw the regulatory determination. With the available data, he does not see why they need to keep the regulations on perchlorate. Mr. Borman noted that they should keep the advisory, but remove the regulations, and let the states deal with it individually.

- Ms. Lisa Daniels acknowledged that she is glad to hear that they accounted for California and Massachusetts standards in the evaluation of occurrence. She asked if anyone was aware of what the occurrence data looks like in California and Massachusetts.
  - Mr. Burneson noted that the original Unregulated Contaminant Monitoring Rule 1 (UCMR 1) data with California and Massachusetts included showed 4.1% of systems reported perchlorate at levels above the 4 ppb minimum reporting level, and approximately one out of three of those systems was from California.
  - Ms. McLain responded that they do look at data other than UCMR.

- Ms. Daniels noted that "use" and "susceptibility" waivers are available to systems. She emphasized that they could not issue a perchlorate monitoring waiver for someone using sodium hypochlorite because of the potential that perchlorate is in the bulk chemical carboy or day tank.

- Ms. Sarah Pillsbury asked if California and Massachusetts have different endpoints.
  - Mr. Burneson responded that California based their health-based goals on avoiding interference with iodine uptake into the thyroid gland. EPA has based its maximum contaminant level goal (MCLG) on avoiding adverse effects on neurodevelopment.

- Mr. John Brady commented that in California there were a number of significant perchlorate releases that resulted in contamination of aquifers in California as well as in the Colorado River and associated reservoirs. The data shown by EPA was of treated potable water only. Mr. Brady also noted that there was a bioaccumulation study of winter lettuce in Arizona, which documented that the perchlorate concentrations within

the lettuce were several orders of magnitude higher than found in the irrigation water and this lettuce was shipped worldwide.
  - Mr. Burneson responded that EPA is relying on Food and Drug Administration total diet studies to predict the dietary exposure to perchlorate, compared to the reference dose.

- Mr. Borman stated that reverse osmosis will not work for small systems. He strongly suggests taking out the point of use for reverse osmosis. Smaller utilities cannot afford it.

- Mr. Alley noted that water reuse may solve this problem with reverse osmosis. He also asked what lessons EPA learned from PFAS, with the experience of perchlorate.
  - Mr. Burneson answered that an important lesson is that scientific understanding will always improve over time with study. Some uncertainties diminish when we have greater confidence as new science is developed.

- Ms. Carrie Lewis noted that in the beginning there was talk of trace amounts of perchlorate forming in hypochlorite that is improperly stored. She asked what contribution hypochlorite solutions make to the perchlorate concentrations when diluted in treated water.
  - Mr. Burneson responded he was unsure of the exact levels of perchlorate found from hypochlorite solutions. He noted that the American Water Works Association (AWWA) put together recommendations for handling for hypochlorite solutions. Mr Burneson noted that the Massachusetts drinking water standard of two considered the challenges of perchlorate formation in hypochlorite solutions.

- Ms. Lewis noted that perchlorate occurrence is low and believes that there is not a meaningful opportunity for a regulation. She suggests the withdrawal of regulations for perchlorate.

Reducing Health-Based Drinking Water Violations at Community Water Systems

Ms. Thompkins provided an overview of efforts related to reducing health-based drinking water violations at community water systems. To view the presentation, please see the public meeting materials on EPA's website at: https://www.epa.gov/ndwac

From the EPA's Office of Enforcement and Compliance, Mr. Mark Pollins, the Director of the Water Enforcement Division, and Ms. Martha Segall, the Acting Director of the Monitoring, Assistance, and Media Programs Division, provided remarks as follows. Despite the efforts of EPA and states, tribes, and territories, there remain a number of drinking water systems that are

not in compliance with the Safe Drinking Water Act. EPA is addressing that problem in a number of ways, including infrastructure funding and technical assistance. EPA's Strategic Plan calls for a 25% reduction by the end of FY2022 in the number of community water systems that are out of compliance with health-based standards. EPA's Office of Enforcement and Compliance OECA) has made Reducing Noncompliance with Drinking Water Standards at Community Water Systems a National Compliance Initiative (NCI) for FY2020 - 2023, requiring Regions to work with states, tribes, and territories to focus on this important issue. Among other things, work under the drinking water NCI will help achieve the strategic measure of reducing by 25% the number of systems in noncompliance with health-based standards. They will also engage with the states to assess larger community water systems. OECA, through collaboration with the Office of Water and the Regions, developed a strategy to employ the full range of compliance assurance tools and approaches to ensure public health protection. For example, particularly for small systems, EPA has set aside $1.1 million to fund contracts to provide technical assistance - through circuit riders - to small drinking water and wastewater operators who are struggling to meet regulatory requirements.

NDWAC Discussion, Questions, and Comment

Council members provided the following feedback regarding the Health-Based Drinking Water Violations Update:

- Ms. Swallow commented that they sort violations by the certified operator name. When they do this, certain contract operator names are sometimes responsible for a disproportionate number of violations and this is another way to target compliance efforts.

- Mr. Borman stated that his utility was lucky enough to have a regional workshop. The workshops are on governing body training as they apply to being owners of a public water system. He would like to see more workshops and hopes they can expand these. Mr. Borman asked if there was any data on capacity development. He also wondered if there was any correlation that would show compliance in the states that have mandatory board systems versus the ones that do not.
    - Ms. Thompkins responded that she would have to look into this. She noted that the National Governors Association held a boot camp for their new water policy advisors.

- Ms. Daniels acknowledged that good drinking water operators are important. They have taken on some enforcement cases and have encountered fraud. It is becoming a concern and they need to look into contractor operators more deeply.
    - Ms. McLain noted that the conversation on training operators is important to continue.

- Ms. Daniels stated she is a huge supporter of the AWOP (Area Wide Optimization Program). She noted that AWOP is a valuable program and she would like to encourage full funding.

- Mr. Kasraei commented that he agreed with the concept – trust but verify. He asked about the difference between primacy, delegated authority, and MOU (Memorandum of Understanding). Primacy sees EPA as a partner, but the responsibility is placed on systems to do the updates. He noted that enforcement spikes are commonly seen as a new rule comes out, especially in small systems. He expressed concern over a 40 percent reduction in operators.
    - Mr. Pollins stated he is also concerned over the number of operators retiring. He noted that he did not see much difference between authorizing a state program under other statues and primacy under the SDWA. However, under the SDWA there is a significant degree of coordination that takes place before the federal government takes an action. OECA will refer to established partnership principles to guide the Agency in our state relations.

- Ms. Pillsbury acknowledged that this is one area where states vary. The ground water rule includes everything in sanitary surveys, from operator to distribution. In terms of the enforcement initiative, New Hampshire went through every system that has violations. To get a 25% reduction, you have to get the small systems. Inspections and enforcement will not address the basic technical, managerial and financial deficits at small systems that lead to violations.
    - Mr. Pollins agreed and stated that this is why the initiative is an NCI, meaning we intend to use the full array of "tools" available to achieve compliance, not just enforcement actions, though formal enforcement will always remain as an alternative.

- Mr. Alley noted that some states are well ahead of EPA in setting regulations for water reuse. Operators are becoming more critical, as it is becoming more complex for systems. So the stated goal to help foster a talented workforce could be a useful contribution.

- Ms. Daniels mentioned resources and funding. Resources need to be part of the conversation. In Pennsylvania, state funds (both general fund and state fees) account for about 60% of the funding and it is increasing. Federal funding is not sufficient and non-regulatory drivers are getting in the way (taking resources away from the core program).

- Mr. Kasraei acknowledged that funding is a big resource in the ability for them to do their jobs. The federal funding is not sufficient to support the core program.

Closing Remarks

Ms. Lewis and Ms. McLain closed the meeting and thanked everyone for attending. They extended thanks to the Council members for providing their feedback. Ms. McLain thanked Ms. Lewis for being the chair of the NDWAC and thanked the EPA presenters. She also thanked and acknowledged Ms. Corr for being the new DFO.

Ms. Corr adjourned the meeting.

ATTACHMENT A

NDWAC Meeting

List of NDWAC Members and Liaisons

December 2019

NDWAC Members
Carrie M. Lewis: Chair General Manager, Portland Water District
William Alley: Director of Science and Technology, National Ground Water Association
Scott Borman: General Manager, Benton/Washington Regional Public Water Authority
John Brady: Deputy Director, Operations & Engineering Central Coast Water Authority
Alexandra Campbell-Ferrari: Co-Founder and Executive Director, The Center for Water Security and Cooperation
Ann Marie Chischilly: Executive Director, Institute for Tribal Environmental Professionals, Northern Arizona University
Lisa Daniels: Director, Water Bureau Pennsylvania Department of Environmental Protection
Saeid Kasraei: Administrator, Maryland Water Supply Program, Maryland Department of the Environment
Wilmer Melton, III: Director of Public Works, City of Kannapolis
Randy A. Moore: President, Iowa American Water
Sarah Pillsbury: Administrator, Drinking Water and Groundwater Bureau, New Hampshire Department of Environmental Services
James M. Proctor, II: Senior Vice President and General Counsel, McWane, Incorporated
June Anne Swallow: Chief, Office of Drinking Water Quality Rhode Island Department of Health
Jeffrey D. Tiberi: Retired, Montana Association of Conservation Districts Member, Lewis and Clark County Outdoor Air Quality Advisory Committee
Macaroy “Mac” Underwood: Retired General Manager, Birmingham Water Works Board
Liaisons
Dr. Vincent Hill, Ph.D., PE: Chief, Waterborne Disease Prevention Branch, Division of Foodborne, Waterborne and Environmental Disease, Centers of Disease Control and Prevention

ATTACHMENT B

NDWAC Meeting

List of Attendees

December 4-5, 2019

First Name	Last Name	Affiliation
William	Alley	National Ground Water Association, **NDWAC MEMBER**
Lara	Beaven	Inside EPA
Betsy	Behl	Office of Water/Office of Science and Technology
Scott	Borman	Benton/Washington Regional Public Water Authority, **NDWAC MEMBER**
John	Brady	Central Coast Water Authority, **NDWAC MEMBER**
Eric	Burneson	U.S. Environmental Protection Agency
Alexandra	Campbell-Ferrari	The Center for Water Security and Cooperation, **NDWAC MEMBER**
Tim	Cansler	Cansler Consulting
Harold	Chag	MCF International
Ann Marie	Chischilly	Institute for Tribal Environmental Professionals, **NDWAC MEMBER**
Lisa	Christ	U.S. Environmental Protection Agency
Elizabeth	Corr	U.S. Environmental Protection Agency, **NDWAC DFO**
Lisa	Daniels	Pennsylvania Department of Environmental Protection, **NDWAC MEMBER**
Brent	Fewell	ETE
Tom	Grubbs	Retired U.S. Environmental Protection Agency
Yu-Ting	Guilaran	U.S. Environmental Protection Agency
Vincent	Hill	Centers of Disease Control and Prevention, **CDC LIAISON to the NDWAC**
Saeid	Kasraei	Maryland Department of the Environment, **NDWAC MEMBER**
Mike	Keegan	National Rural Water Association
Vic	Kimm	Retired U.S. Environmental Protection Agency
Matthew	Klasen	U.S. Environmental Protection Agency
Jeff	Lape	U.S. Environmental Protection Agency
Carrie	Lewis	Portland Water District, **NDWAC MEMBER and CHAIR**
Chris	Lindsy	International Association of Plumbing and Mechanical Officials
Jennifer	McLain	U.S. Environmental Protection Agency
Wilmer	Melton	City of Kannapolis, **NDWAC MEMBER**
Vanessa	Muiby	Water & Wastewater Equipment Manufacturers Association Inc.
Sarah	Pillsbury	New Hampshire Department of Environmental Services, **NDWAC MEMBER**
Mark	Pollins	Office of Enforcement and Compliance Assurance/OCE
James	Proctor	McWane, Incorporated, **NDWAC MEMBER**
Carl	Reeverts	Retired U.S. Environmental Protection Agency
Alan	Roberson	Association of State Drinking Water Administrators
Jim	Rollins	PNS
Stephanie	Schlea	Association of Metropolitan Water Agencies
David	Schultz	Bloomberg Environment
Martha	Segall	U.S. Environmental Protection Agency

First Name	Last Name	Affiliation
Jamie	Strong	U.S. Environmental Protection Agency
June Anne	Swallow	Rhode Island Department of Health, **NDWAC MEMBER**
Jeff	Tanner	Flow-Liner
Anita	Thompkins	U.S. Environmental Protection Agency
Jeffrey	Tiberi	Montana Association of Conservation Districts Member, **NDWAC MEMBER**
Steve	Via	American Water Works Association
Barbara	V.	OECA/OCE/MAMPD
Wendi	Wilkes	Association of State Drinking Water Administrators
Ariel	Wittenberg	Environment & Energy Publishing