

National Drinking Water Advisory Council (NDWAC)

December 7-8, 2017

Location:

U.S. Environmental Protection Agency Headquarters
1201 Constitution Avenue, NW
Washington, DC 20460

MEETING SUMMARY

Meeting Objectives/Desired Outcomes:

- *Update the Council on the Office of Ground Water and Drinking Water (OGWDW) Program activities, the Standards and Risk Management Program activities, and the Drinking Water Protection Program activities, including the Lead and Copper Rule (LCR) revisions, the Contaminant Candidate List (CCL), the Unregulated Contaminant Monitoring Rule (UCMR), and outreach efforts*
- *Discuss Health Advisory (HA) communications and their development and provide an update on the National Drinking Water Advisory Council (NDWAC) Subgroup's HA charge responses*
- *Discuss and consider ways to increase transparency and communication between utilities; the public; state primacy agencies; and local, state, and federal officials*
- *Learn about the benefits and challenges of water system partnerships and discuss examples of these partnerships*
- *Discuss integrated water management, including its importance and challenges and examples from around the country*

DAY 1

A. Opening and Welcome

Tracey Ward, the Designated Federal Officer (DFO) for the National Drinking Water Advisory Council (NDWAC) opened the public meeting¹ and highlighted 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 empowered 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 entirely 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

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

financial conflicts of interest or appearance of a lack of impartiality under the ethics regulations², as they relate to the topics of this meeting.

FACA and EPA policies require NDWAC meetings to be announced to the public in the Federal Register; any substantive deliberations and interactions with EPA and the public are to be conducted in open sessions where a DFO is present to ensure that the requirements of FACA are met. In accordance with FACA, the public had an opportunity to provide verbal comments during the meeting during the public comment period on Friday, December 8 from 11:30-12:15, as long as they had registered in advance of the meeting or registered on-site on December 7. Ms. Ward noted that written comments could also be submitted and would be posted on EPA's NDWAC website and circulated to Council members. A meeting summary would be prepared after the meeting and posted on the NDWAC website³ after being certified by the NDWAC Chair, Carrie Lewis.

Carrie Lewis, NDWAC chair, thanked attendees, Administrator Scott Pruitt, and EPA's Office of Ground Water and Drinking Water (OGWDW) for their time and her reappointment as chair. Ms. Lewis noted that she has moved from Milwaukee, Wisconsin and is now at the Portland Water District in Maine. 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 last NDWAC meeting took place in December of 2016, and since then, the Council has welcomed June Anne Swallow from the Rhode Island Department of Health. Ms. Lewis noted that Sarah Pillsbury from New Hampshire Department of Environmental Services was in attendance via teleconference and that although some NDWAC members were not able to join in person, they have provided information for the meeting. She then invited participants to introduce themselves and identify their organizational association⁴.

During his introduction, Dr. Peter Grevatt, the OGWDW Director, welcomed attendees both from inside and outside of EPA. He noted that the attendance and interest in NDWAC reflects the importance of safe drinking water and the expert advice that the NDWAC is able to provide to EPA on the future direction of critical issues. Dr. Grevatt stated that five years ago he promised the NDWAC was going to be engaged in a meaningful and substantial way, and he believes that the work the NDWAC has done reflects this. Dr. Grevatt thanked Ms. Lewis, the NDWAC chair, for her continued leadership and expressed his thanks that she was able to attend.

B. EPA Office of Ground Water and Drinking Water (OGWDW) Program Update

Dr. Grevatt provided a program update for EPA's OGWDW and highlighted priority areas, which are discussed below.

² The ethics regulations are specified in the Code of Federal Regulations, Title 5, Part 2635

³ NDWAC website: <http://epa.gov/ndwac>

⁴ See [Attachment B](#) for a list of meeting attendees

1. Perchlorate Peer Review Process

Earlier in 2017, EPA conducted a peer review on a Biologically Based Dose Response (BBDR) model EPA developed to predict the relationship between perchlorate exposure and thyroid hormone levels in sensitive life stages, as recommended by the science advisory board. In 2018, a second peer review will be conducted to seek guidance from experts on the scientific assessment that links the revised perchlorate BBDR model predictions to neurodevelopmental outcomes.

2. Lead and Copper Rule (LCR) Update

EPA will be moving forward on a variety of activities to help support the development of a revised LCR. EPA completed peer review of scientific modeling approaches to define the relationship between lead levels in drinking water and blood lead levels, particularly for sensitive life stages such as formula fed infants and children. EPA intends to initiate a second round of federalism consultations on potential revisions to the LCR in early January 2018. EPA conducted similar outreach in 2011, however, EPA Administrator Pruitt has placed specific emphasis on re-engaging with state and local officials given the lead in drinking water contamination incident in Flint and in other cities across the country.

Dr. Grevatt also noted that EPA is a number of years away from a new rule taking effect, so the Agency will continue to work closely with states and local communities to effectively implement the current LCR. There is work external to EPA on lead and copper, including the lead service line collaborative, as well as in communities that have undertaken initiatives to replace lead service lines.

3. Proactive Strategy to Address Unregulated Contaminants

Dr. Grevatt discussed EPA's efforts to address unregulated contaminants, extending beyond the initial discussion of the work currently being undertaken on perchlorate. EPA develops Health Advisories (HAs) to communicate technical information on health effects, analytical detection methods, and treatment technology for unregulated contaminants; these HAs can have significant influence on practices and decisions that are made in local communities regarding activities related to potential sources of these compounds. There are many states that have been taking a variety of actions related to these compounds on the part of affected communities and general public concern. In December 2017, EPA announced a cross-agency effort to address PFAs, which include PFOA, PFOS, and GenX. Dr. Grevatt has a leadership role.

4. Infrastructure

There is an emphasis on infrastructure that comes directly from the White House and Administrator Pruitt. Within the drinking water sector, a needs assessment from a few years ago found that an estimated \$384 billion investment is required in new and existing infrastructure. The largest need relates to transmission and distribution. EPA plans to be centrally involved in these discussions about infrastructure investment. Drinking Water State Revolving Funds (DWSRFs) will be made available, in

addition to funding from the United States Department of Agriculture (USDA) Community Facilities Direct Loan & Grant Program⁵ and EPA's Water Infrastructure Finance and Innovation Act (WIFIA)⁶. An initial \$25 million investment for the WIFIA program will generate billions of dollars of infrastructure projects on the ground.

EPA solicited letters of interest from potential loan recipients and received 34 letters in January 2017 from a broad array of parties and large geographic distribution including drinking water, wastewater, water re-use and small and large utilities. Twelve entities were invited to submit formal applications, and EPA is currently working towards another request for letters of interest.

5. Partnerships

EPA will continue to reflect on the importance of water system partnerships. Given the range across system size and type in the U.S., water system partnerships leverage the expertise needed to run a quality system to provide safe drinking water to the public.

6. Innovative Technologies

Dr. Grevatt highlighted a desire to identify innovative technologies to create space for utilities and systems to do new things. There are a number of states interested in pursuing re-use opportunities, including potable reuse. New treatment and monitoring technologies that are being employed will help to create the space for utilities to do new things that are cost-effective and allow for a more sustainable water system in the long term.

Potable re-use and water loss are important topics around which innovation is needed, especially when thinking about distribution systems and understanding the variety in performance across the country. Some utilities have already dealt with this challenge and some have focused on treatment options and processes. However, the approach should be holistic, as utilities should identify not just the challenges in water loss but also in erosion control and disinfectant residual. We want to encourage utilities to take advantage of emerging technologies and contemplate not just rebuilding existing systems but also building systems of the future.

7. NDWAC Questions and Comments

Council members provided the following feedback regarding the program update on OGWDW:

⁵ More information on the United States Department of Agriculture (USDA) Community Facilities Direct Loan & Grant Program can be found here: <https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program>

⁶ More information on WIFIA can be found here: <https://www.epa.gov/wifia>

- James Salzman noted that Dr. Grevatt’s comments about direct potable re-use were very relevant in California and asked if there was time in the agenda to discuss the issue further.
 - Dr. Grevatt noted that the topic was not a specific agenda topic, but that there would be opportunity to weave in the discussion during the integrated water management discussion later in the day.

- Howard Neukrug noted that asset management is an issue of concern, especially since EPA and the American Water Works Association (AWWA) are asking utilities to upgrade their assessments. New Jersey passed a law requiring all drinking water utilities to develop an asset management plan. Mr. Neukrug asked if EPA could do anything else to assist in these efforts outside of the SDWA.
 - Dr. Grevatt highlighted the work being done by EPA with states and local utilities, including the infrastructure needs survey. The last one was conducted in 2011 and another survey is currently under interagency review. These surveys have identified that there is an emphasis asset management, especially in relation to transmission and distribution concerns. Drinking water systems in particular, are very engaged on this issue of infrastructure needs. This emphasis will be reflected in the upcoming 2018 survey, which covered nearly 2,400 systems and had a 99.7% response rate.

- Vincent Hill noted that it is helpful to recognize that investments in sanitation are investments in public health. Investments in water chlorination and water quality have led to marked declines in incidences of typhoid and cholera. These gains have been achieved through effective water systems, which will require continued investments in infrastructure. Dr. Hill applauded OGWDW for maintaining those gains, as drinking water and public health are closely related.
 - Dr. Grevatt commented that within the DWSRFs, every project has to support the goals for the SDWA that are fundamentally about protecting public health, even though there are challenges for local communities in making those investments. Thankfully there are other revenue sources utilities can access to update their infrastructure; although, one of the biggest challenges they face is in raising revenues to invest in the updates while still providing safe and affordable drinking water. Dr. Grevatt noted that there is a broad range of incomes, including fixed income populations that pose a challenge to the prospect of raising rates. Utilities have to find a way to raise rates and generate the revenues necessary to provide safe water to the community while simultaneously respecting the community’s ability to pay for those investments.

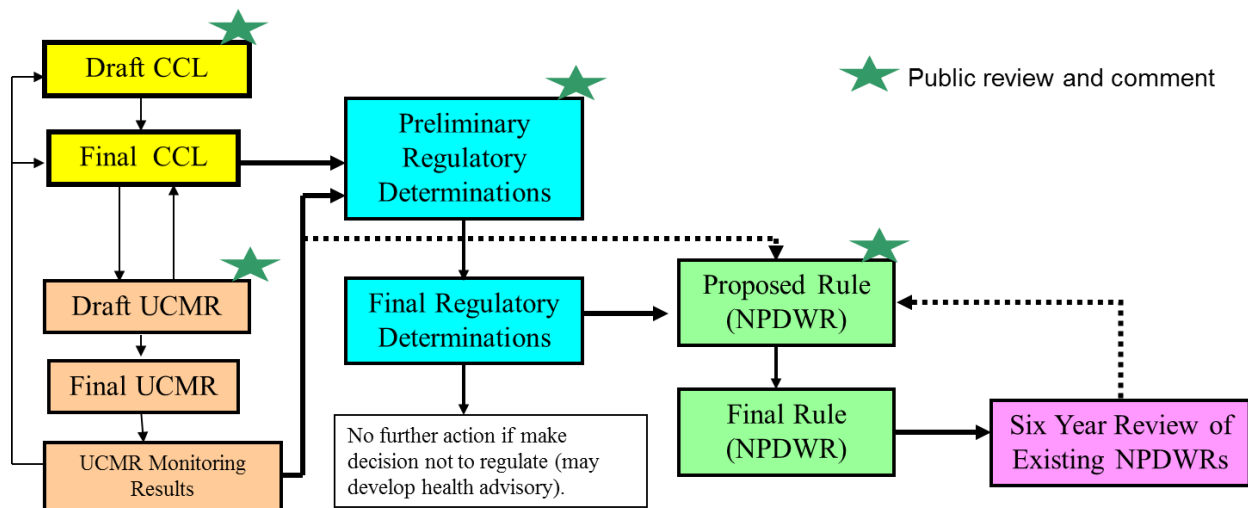
C. Standards and Risk Management Program Update

Eric Burneson, EPA Standards and Risk Management Division (SRMD) Director, presented updates from the division, including steps to develop the contaminant candidate list, the development and revision of drinking water regulations, such as the LCR, and non-regulatory activities including two health advisories

for cyanotoxins and the Drinking Water Protective Action Guide. A summary of Mr. Burneson’s presentation is provided below.

1. The SDWA Process

The general flow of the SDWA Regulatory Process is shown in **Figure 1**, below.



At each stage, need increased specificity and confidence in the type of supporting data used (e.g. health, occurrence, treatment).

Figure 1. General Flow of the SDWA Regulatory Process

The first step of the SDWA Regulatory Process is the development of a Contaminant Candidate List (CCL). The fourth CCL (CCL 4) was published over a year ago on November 17, 2016 and contained 97 chemicals and 12 microbial contaminants⁷. The next steps are ongoing and involve compiling and evaluating additional data on the CCL 4; making regulatory determinations for CCL 4 contaminants that have sufficient health effects and occurrence data and present the greatest public health concern; and continuing to collect information to fill data and information gaps.

The fourth Unregulated Contaminant Monitoring Rule (UCMR 4) was published in December 2016. It identified 30 contaminants, including ten cyanotoxins and cyanotoxin groups, three brominated haloacetic acids (HAAs)(DBP group), eight pesticides and one pesticide manufacturing product, two metals, three alcohols, three synthetic organic contaminants (SOCs), and two indicators that will be monitored beginning January 2018 by large water systems and a representative group of small water

⁷ More information about CCL 4 can be found on EPA’s website: <https://www.epa.gov/ccl/contaminant-candidate-list-4-ccl-4-0>

systems between 2018-2020⁸. Once data is available, it will be posted quarterly on the EPA website⁹. OGWDW hosted a meeting in April of 2017 to review the key elements of UCMR 4 and has been conducting outreach and collaborating with regions, states, and public water systems (PWSs) to ensure that laboratories and PWSs are aware of the requirements of UCMR 4. This included hosting three webinars in November 2017 to help PWSs and laboratories prepare to use the web-based reporting system to report UCMR 4 results to EPA. OGWDW will also identify health-based reference concentrations, when available. These reference concentrations will provide context around the detection of UCMR 4 contaminants and are intended to assist health officials with risk communication. SDWA requires EPA to review existing National Primary Drinking Water Regulations (NPDWRs) every six years and revise them, if appropriate. EPA published the 3rd Six-Year Review on January 11, 2017. This review was the first to address microbial and disinfection byproduct regulations and included a detailed review of 76 NPDWRs. Of these 76 NPDWRs, eight were determined to be candidates for regulatory revision. The next Six-Year Review is required to be published in January 2023.

Perchlorate is an inorganic chemical that can interfere with the thyroid. Potential health effects of perchlorate are of particular concern for infants and children, as impaired thyroid function has been linked to delayed developmental and decreased learning capability. In accordance with the SDWA, EPA requested comments from the Science Advisory Board (SAB) prior to proposing a Maximum Contaminant Level Goal (MCLG) and NPDWR. In 2013, the SAB recommended that EPA develop a perchlorate MCLG through physiologically-based pharmacokinetic/pharmacodynamic modeling (PBPK).

EPA collaborated with the U.S. Food and Drug Administration to follow the recommendation of the SAB to develop the MCLG using PBPK modeling. The models aim to predict doses that produce changes in the thyroid. The peer review of the Biologically Based Dose-Response model was completed in January 2017, and the peer reviewers offered extensive comments and modifications to the model¹⁰. In January of 2018, the peer review panel will convene in the D.C. area to review the revised model and understand how the model can be used to devise an MCLG for perchlorate. EPA is under a Consent Decree to develop a proposed drinking water regulation for perchlorate by October 2018, with a final regulation in place by December 2019. Peer review is a key next step to evaluate the robustness of the model.

2. Proposed “Lead Free” Rule and Revisions to the LCR

The Proposed Rule “Use of Lead Free Pipes, Fittings, Fixtures, Solder and Flux for Drinking Water,” also known as “Lead Free,” was published in the Federal Register on January 17, 2017. This rule seeks to make changes to existing drinking water regulations that are based on the Reduction of Lead in Drinking Water Act and proposes new requirements to ensure that those purchasing, installing, or inspecting

⁸ More information on UCMR 4 can be found on EPA’s website: <https://www.epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule>

⁹ Occurrence data can be accessed at: <https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule>

¹⁰ The meeting summary report can be found at: <https://www.regulations.gov/document?D=EPA-HQ-OW-2016-0439-0006>

potable water systems can identify lead free plumbing materials. As of 2014, materials had to meet the new definition of lead free (0.2% lead). Prior to this, products with 8% lead were considered to be in compliance.

In December 2015, the NDWAC provided extensive and significant recommendations for revisions to the LCR. These recommendations included proactive Lead Service Line Replacement (LSL) programs, more robust public education requirements for lead and LSLs, and strengthening Corrosion Control Treatment (CCT) requirements. As a result of the advice and revisions, EPA published a LCR Revisions White Paper in October 2016 that provided examples of potential options to improve the existing rule, as well as challenges and analytical issues. EPA also completed peer review of draft modeling approaches to define the relationship between lead levels in drinking water and blood lead levels. The Agency continues to work on possible revisions to the LCR and is planning a federalism collaboration with state and local partners.

3. Cyanotoxin Activities

EPA supported a number of Harmful Algal Blooms (HABs) workshops in the last 2 years. This year, EPA also developed and further refined The Drinking Water Risk Communication Toolbox Webpage¹¹. In 2015 and 2016, the Agency developed and published improved analytical methods for algal toxins (EPA Methods 544, 545, and 546). EPA also developed and published a document on water treatment optimization for cyanotoxins in addition to fact sheets¹².

4. NDWAC Discussion, Questions, and Comments

Council members provided the following feedback regarding the Standards and Risk Management Update:

- Ms. Lewis noted how striking EPA's diligence is in seeking comments. She stated that it was appreciated by those involved in taking the next steps.
- Ms. Swallow asked why there was not a date for the proposed LCR revisions. She noted there used to be a date for the revisions.
 - Dr. Grevatt noted that EPA is currently in the first steps of reaching out to national organizations (often referred to as the "big ten") for federalism consultation, and therefore have not identified a specific date. Depending on what comes from that process, EPA will have a clearer picture of next steps.

¹¹ EPA's Drinking Water Cyanotoxin Risk Communication Toolbox can be accessed at:

<https://www.epa.gov/ground-water-and-drinking-water/drinking-water-cyanotoxin-risk-communication-toolbox>

¹² More information on EPA's cyanotoxin tools for public water systems can be found on EPA's website:

<https://www.epa.gov/ground-water-and-drinking-water/cyanotoxin-tools-public-water-systems>

- Ms. Lewis asked for clarification on who the Big Ten were.
 - Mr. Burneson stated that the Big 10 included state and local elected officials, the national governor's association, and county executive associations. They can also be supplemented with utility associations, government associations, and schools on a case by case basis.

- Dr. Hill noted that education that EPA has developed around HABs and cyanotoxins is great. Many people come to EPA websites and other resources, and if they see HABs locally, they may have questions about fishing or swimming in those areas. Dr. Hill asked what the relationship between the work done in drinking water with cyanotoxins and HABs was with recreational water concerns and if additional information could be shared.
 - Elizabeth (Betsy) Behl, EPA Office of Science and Technology (OST) Director, stated that after completing the HAs, EPA began looking at recreational waters and water quality criteria for algal toxins. These were proposed as a draft last year and went through the public comment period. EPA is currently finalizing the recreational criteria, and it will hopefully be final in spring 2018. EPA is also working with state organizations and developing implementation materials. The fishing question is still out there and may be addressed in the future.

- Jeanne-Marie Bruno asked if the federalism consultation will include groups that would have to implement the new rules.
 - Mr. Burneson noted that EPA is identifying appropriate organizations to make sure that the representation is there. EPA is working to identify municipally-owned water utility representatives.

- Ann Marie Chischilly asked if there would be representation from tribes.
 - Mr. Burneson noted that federalism is not the only consultation. There is also an executive order for tribal consultation and EPA is initiating tribal consultation on the LCR in 2018.

- Mr. Salzman asked about the relationship between the CCL and the UCMR and if they rolled over period to period.
 - Mr. Burneson responded that the CCL and the UCMR are on five-year rotating schedules. The timing was originally set where a CCL was released and then those contaminants were put on the UCMR list. EPA determines whether to regulate at least five contaminants from the CCL. The CCL and UCMR address unregulated contaminants, while the Six-Year Review focused on regulated contaminants.
 - Dr. Grevatt noted that there is a phrase in the SDWA that notes it is to the sole judgement of the EPA Administrator.

- Mr. Neukrug noted that in the January 11, 2017 Six-Year Review there is a lot of discussion on DBPs and asked EPA where they were on the discussion. Mr. Neukrug also asked if EPA was moving in the direction of re-use and making wastewater drinkable.
 - Dr. Grevatt responded by noting there is a lot of work and issues that need to be thought through for the Six-Year Review. There is currently no schedule for EPA yet. In terms of the public re-use question, SDWA is clear in the quality of water that is provided and does not speak to potable re-use or other sources. There are currently systems that are providing re-use as a safe product, but that does not mean all small systems should go that way. There are a number of states taking steps now to develop regulations to address this issue.

D. Drinking Water Protection Program Update

Anita Thompkins, director of the Drinking Water Protection Division (DWPD), welcomed and thanked all members of the NDWAC for their participation. Ms. Thompkins provided an overview of the ongoing activities related to implementing the LCR, DWSRF unliquidated obligations (ULOs), and source water protection workshops. Key points from her presentation are below.

1. Activities to Promote the Implementation of the Revised LCR

National Efforts to Improve the Implementation of the LCR: Summary of Training and Resources

To understand what was happening nationally on the LCR updates, EPA Headquarters worked with the EPA Regions and the states. EPA determined that training was needed to help drinking water administrators and public water systems enhance their implementation of the LCR. In response to this need for education, EPA continues to repeat every summer a three-part webinar series of LCR 101 trainings. The LCR 101 webinar trainings reached about 360 attendees from 48 states, D.C., Puerto Rico, and the Virgin Islands in 2017 alone. This training not only serves as a reminder of the rule requirements but also served as a pre-training to prepare state and public water systems' knowledge of the regulation prior to participating in one of the multiple workshop trainings EPA conducted starting in late 2016.

In addition, EPA released the Optimal Corrosion Control Treatment (OCCT) guidance¹³ to assist drinking water managers and operators to understand how to comply with LCR corrosion control treatment requirements and effective evaluation and designation of OCCT. In-person trainings were conducted in all 10 Regions in 2016 and 2017. In addition to state and regional staff, attendees included technical assistance providers such as Rural Community Assistance Partnership (RCAP), American Water Works Association (AWWA), and National Rural Water Association (NRWA).

As a follow up to the OCCT workshop training, EPA developed the Optimal Water Quality Parameter (OWQP) training. This training builds upon the OCCT training and includes an intensive workshop that

¹³ More information on the Optional Corrosion Control Treatment guidance can be found here: <https://www.epa.gov/dwreginfo/optimal-corrosion-control-treatment-evaluation-technical-recommendations>

includes chemistry components and focuses on water quality parameters, including what they are and how they relate to corrosion control, rule requirements and implementation, and ongoing oversight considerations related to corrosion control treatment optimization. The training was initially piloted in Region 1 in May 2017; additional trainings in the remaining EPA Regions are planned.

Systems with ALEs and National Compliance Trends for LCR

Ms. Thompkins provided an overview of LCR data noting that there are 150,000 public water systems and the LCR applies to approximately 68,000 community and non-transient non-community water systems. EPA receives quarterly data regarding LCR compliance and violations, action level exceedances (ALEs), 90th percentile data for certain system sizes, and other milestone data, such as lead service line replacement (LSLR). LCR data is typically evaluated in 3-year cycles, since this is the most common compliance monitoring schedule among systems sampling for lead and copper. Ms. Thompkins stressed that ALEs are not violations; unless the public water systems does not take the required steps outlined in the regulation to address an ALE.

EPA conducted an analysis of systems with ALEs and found that there are 2,400 systems with ALEs. EPA Headquarters worked with the EPA Regions and primacy agencies to continue to track these systems and analyze newer data to determine if the ALEs were properly identified. After this analysis, the initial 2,400 systems were reduced to 1,800 systems; two areas of improvement were identified including public education and the installation of corrosion control treatment. From 2006 to 2017, the number of overall ALEs decreased dramatically for small systems from 3,451 to 1,731 systems in violation of the LCR. Ninety-five percent of these violations were monitoring (M/R) and reporting violations, while treatment technique (TT) violations accounted for the other 5% of violations from July 1, 2016 to June 30, 2017. Seventy-five percent of the M/R violations were associated with small systems ($\leq 3,300$) while less than 1% of the TT violations were associated with large systems ($>100,000$).

There are approximately 1,000 systems in EPA's inventory that are on tribal lands. Eight hundred and ninety-two of these systems are required to comply with the LCR. In 2017, there were 118 tribal systems with LCR violations; these violations account for 1% of the total systems with violations. From 2015 to 2017, there were 38 tribal systems with ALEs, which accounted for 2% of the total number of systems with ALEs.

Moving forward, EPA will be assessing trends, and identifying areas of noncompliance; providing targeted technical assistance and training based on areas that need the most support; and using tools like the ALE tables to identify systems having issues with controlling lead and copper.

Lead Sources Infographic

On August 21, 2017, EPA published the *Sources of Lead in Drinking Water* infographic¹⁴. The infographic covers sources of lead, information on how to reduce exposure, information on how to remove lead service lines, and information on how to identify other lead sources in a home.

Drinking Water in Schools

There is no federal law requiring the testing of drinking water in schools and childcare facilities except for those owned and operated by a water supply system, which have to comply with the SDWA. There are about 7,000 public water systems listed as a childcare and school facilities. The first guide for schools was issued in 1994. In 2006, EPA issued the 3Ts program (train, test water at facility, and tell). EPA is working with the states to prioritize any assistance that is needed, including participating in the Lead in Schools National Workgroup and conducting EPA's Reducing Lead in Drinking Water Schools - Case Study webinar series. Two webinars have been broadcast, one featuring Denver Water and Denver Public Schools in June 2017 and one featuring the New York Department of Health's efforts in September 2017. Another webinar to feature the Massachusetts Department of Environmental Protection and the University of Massachusetts is scheduled for December 14, 2017. These webinars are attended by drinking water and school stakeholders, and recordings can be found on the EPA Drinking Water Team website¹⁵.

The EPA Regions are also undertaking a number of activities to support schools and Ms. Thompkins provided a few examples Region 1 provides technical assistance and works closely with states that are conducting lead testing. Region 2 has partnered with federal, state, and local authorities to implement the 3Ts program. Each year, Region 2 targets up to two school districts for developing and expanding the 3Ts program. The pool of schools includes Head Start families, which is based on a memorandum of understanding (MOU) signed with the U.S. Department of Health and Human Services (HHS) in 2012, and buildings and schools on tribal lands from 2003-2005. Region 2 has worked with over 30 school districts collecting 400 samples from each school district on average. Region 3 has recently provided in-person and online trainings to school districts and facility managers; Region 5 provides compliance assistance to Detroit Public Schools and technical assistance to other schools and states in the region; Region 8 has sent letters to state departments to raise awareness of the availability of EPA resources to assist schools in reducing lead in drinking water; and Region 9 has a small systems priority that includes schools and is offering lead in drinking water testing in tribal schools in Region 9.

2. DWSRF Unliquidated Obligations (ULO)

In 2014, EPA identified nearly \$2B in the treasury (federal funds) that was not being utilized or invested in communities. EPA initiated a strategy to work with states to identify opportunities to expend the

¹⁴ The *Sources of Lead in Drinking Water* infographic can be accessed here:

https://www.epa.gov/sites/production/files/2017-08/documents/epa_lead_in_drinking_water_final_8.21.17.pdf

¹⁵ More information on EPA's Reducing Lead in Drinking Water Schools – Case Study webinar series can be found here: www.epa.gov/dwreginfo/training

funds on projects that were ready to move forward immediately. By August 2017, the DWSRF ULOs were reduced to approximately \$387M, which is a 78% reduction in funding availability. See **Figure 2** below.

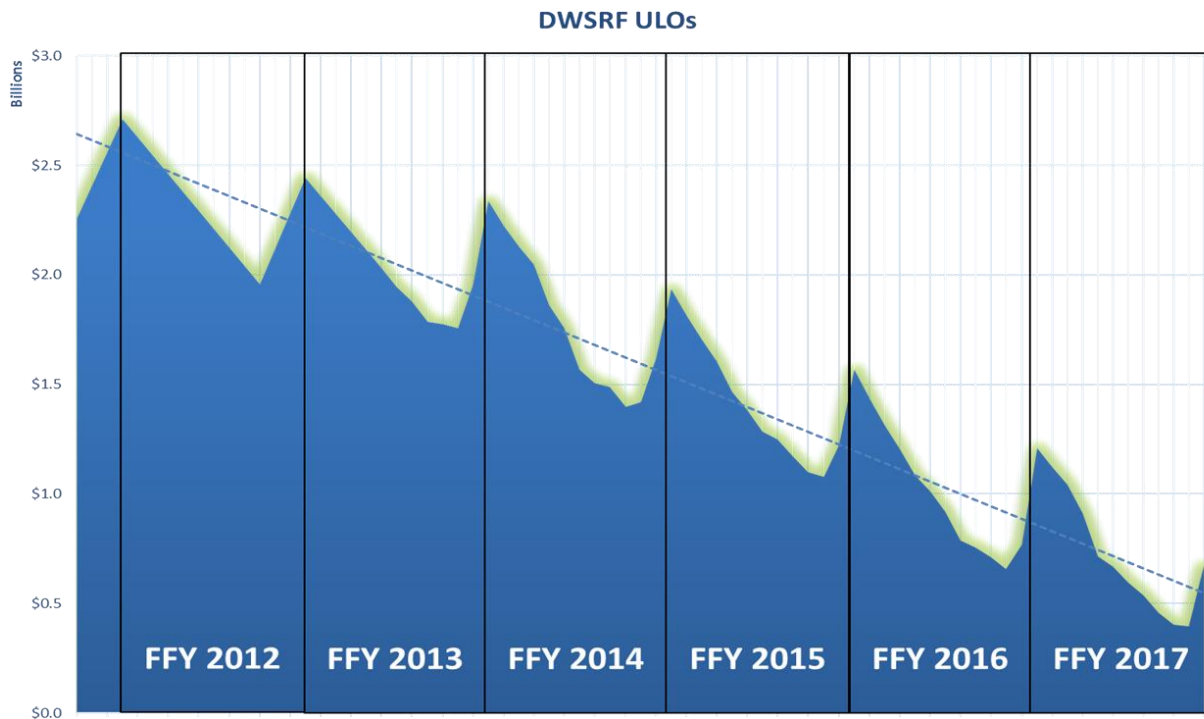


Figure 2. DWSRF ULOs (2012-2017)

EPA's main objective was to use the ULOs to stimulate infrastructure investment. In 2016, assistance provided increased, as well as the disbursements that were made. There seems to be a direct correlation in the disbursements increasing in 2016 and 2017 with an increase in the non-federal funds that were moved into communities, as highlighted in **Figure 3** below.

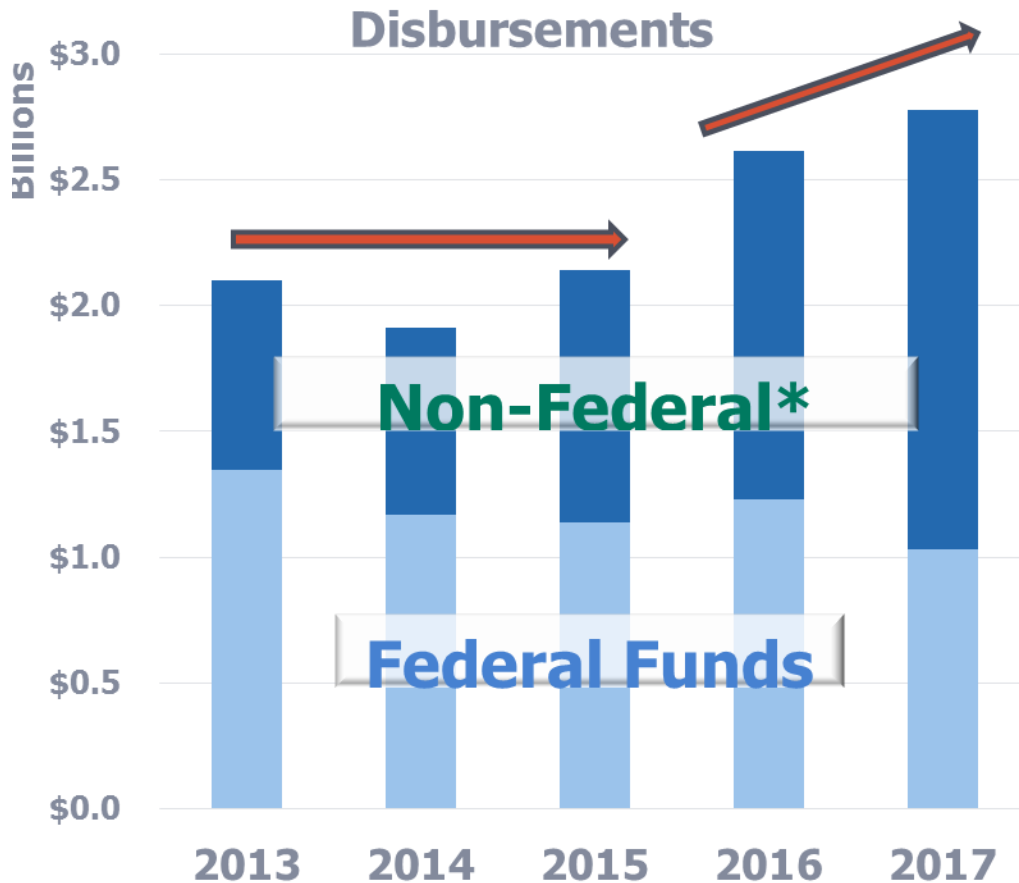


Figure 3. ULO Disbursements: Federal vs Non-Federal Funds

*Non-Federal = state match, principal repayments, interest earnings, leveraged funds

3. Source Water Protection Workshops

Lastly, Ms. Thompkins reviewed information on EPA’s Source Water Protection Workshops. EPA provides planning and facilitation support for workshops at the state or local level to promote source water protection. A central component of these activities is the establishment, expansion, or enhancement of partnerships among stakeholders. EPA has helped support more than 80 regional, state, or local source water protection workshops since 2006. These workshops have resulted in the development of local source water collaboratives and requests for additional workshops in nearby states.

EPA conducted four workshops in fiscal year (FY) 2017: one in Philadelphia, Pennsylvania in December 2016, one in Longmont, Colorado in March 2017, and two in Vermont in June 2017. EPA is planning to hold an additional six workshops in FY 2018 that will be held across the country, including Connecticut, Idaho, North and South Carolina, Pennsylvania, Virginia, and Washington. Potential discussion topics include source water threats from HABs, septic systems, and extreme weather events; how to leverage funds for source water protection, and educating stakeholders about restoration practices, land management, and potential for collaboration.

4. NDWAC Questions and Comments

- Ms. Pillsbury asked if EPA has any data or plans to procure data on the various programs run by states and the subsequent findings.
 - Ms. Thompkins noted that EPA could work to obtain state data and could provide a summary report of the findings if the states are willing to make that data publicly available. This information could help to support trend finding.
- Ms. Bruno highlighted an example from her experiences in California where schools seemed unwilling to allow samples of facility water to be taken and evaluated for lead content. The schools were wary of the results and funds that may be required to address them.
 - Ms. Thompkins noted that schools are challenged by the technical aspects of developing a monitoring plan and then analyzing the data that comes back and prioritizing remediation due to budget constraints. EPA has been working with schools, States and other stakeholder to educate them not only on the importance of testing but also the importance of communicating, educating and involving the school community in the remediation. In addition, EPA continues to collect best practices from our water sector stakeholders and develops quarterly webinars that showcase how best practices for developing monitoring plans, analyzing data, communicating and involving the community and funding mechanism that can help with remediation activities.
- Mr. Neukrug expressed his strong disappointment that this issue has been worked on since 1994 and has still not been resolved. He recalled his time working on it with the City of Philadelphia, Pennsylvania in the 90s.
 - Ms. Thompkins echoed this concern noting that continued education and sharing of best practices is key to ensuring schools have the right tools and access to information that will facilitate testing, notification and remediation.
- Dr. Hill asked how EPA works with local communities and if these relationships were more like partnerships.
 - Ms. Thompkins responded that each initiative is different from state to state and county to county. However, the 3Ts provide a standard practice; depending on the state and the school district, the health department and the department of education may get involved.
 - In some instances, like in Region 2, EPA is working directly with the state and with school districts to take samples and prioritize remediation. Region 2 targets up to two school districts a year and has worked with over 30 school districts; averaging 400 samples for each school district.
- Mark Sanchez commented that there is a focus on lead-based paint but lead in water is a bigger risk.

- Ms. Thompkins responded that recognizing the many sources of lead, OGWDW has found many opportunities to work with other offices within EPA, including our colleagues that work on paint issues, as well as other agencies like the U.S. Department of Housing and Urban Development (HUD). EPA has provided HUD with information on the 3Ts, and infographics, and other materials on lead in drinking water concerns and challenges. EPA recently teamed up with HUD and others to update the *Protect Your Family from Lead in Your Home*, a real estate disclosure pamphlet, to include ways to mitigate risks from lead in drinking water.
- Ms. Swallow noted that in Rhode Island, the state’s only health department worked with school personnel to take samples and facilitated their receipt of testing supplies, taking the samples, and then collecting the samples for analysis. The health department then worked to post the results and have the schools communicate them with parents.
- Ms. Chischilly asked why an overview of Region 10’s activities were not included in the presentation relating to activities in EPA Regions to support schools address drinking water in lead.
 - Ms. Thompkins clarified that EPA Headquarters is not currently aware of the specifics of Region 10’s initiatives and would follow up with the regional drinking water program to get more specifics regarding the work they are doing with schools in the Northwest area of the country
- Cathy Kellon commended EPA for providing funding for workshops for the EPA Regions, since the funding has been critical in leveraging additional funding for 6-9 additional workshops. There will be a workshop in Washington for Region 10 that will bring together over two dozen water utilities.
- Ms. Lewis reminded the Council members that part of the objective of the meeting is to provide advice to EPA and to communicate if particular topics warrant additional discussion.

E. HA Communications: Review of Charge and Work Group Discussion

Ms. Lewis provided an overview of the differences between HAs and Drinking Water Standards and reviewed the HA charge questions. Marilyn Christian, Harris County Public Health and Environmental Services, provided an overview of the Subgroup’s responses to the HA charge questions.

1. Review of HA Charge Questions

Ms. Lewis refreshed the group on the differences between HAs and drinking water standards. The differences are outlined in **Figure 5** below.

HA	MCL/MCLG
HAs are advisory values	MCLs are enforceable standards
HAs are health risk based values	MCLs are frequently based on the cost and availability of treatment technology
HAs define risk-based values for carcinogens	MCLGs for carcinogens are always 0 mg/L
Some HAs are designed for short-term exposure (One and Ten-day HAs)	MCLGs are designed to be protective for all life stages, over a lifetime of exposure

Figure 5. Differences between HAs and Drinking Water Standards, from “Health Advisory Content, Prioritization & Development”, USEPA, presentation to NDWAC Health Advisory Subgroup, September 11, 2017.

In December 2016, EPA charged the NDWAC with questions that would help identify additional recommendations related to the HA process. The charge questions were as follows:

- What factors should we consider when prioritizing contaminants for HAs?
- How can EPA best involve federal, state, and local partners in identifying and prioritizing contaminants for HAs?
- How can EPA enhance collaboration with states, other federal agencies, and external stakeholders to support local communities with developing risk management strategies?

EPA allowed the Subgroup to modify the charges and add an additional charge regarding components to include in HAs. The modified charge questions were as follows:

- What information should EPA consider when determining when to develop or revise an HA?
- What factors should EPA consider when prioritizing HAs? How can EPA meaningfully involve stakeholders and consider their input?
- What factors should EPA consider when developing HAs? How and when is status communicated to key stakeholders, including states and utilities?
- What are core components that EPA can consider including in the HA?

2. Subgroup HA Charge Question Report to the NDWAC

Ms. Christian reported the Subgroup discussion on the four HA charge questions. The Subgroup responses to the charge questions were as follows:

- What information should EPA consider when determining when to develop or revise an HA?
There was consensus among the Subgroup that HAs are a valuable tool used by states, water utilities, and consumers of drinking water (both public systems and private wells). HAs are important to states as they include information regarding the safety of public drinking water,

and may be used by waste site clean-up programs to determine who receives alternate water and what the goals are for remediation. The importance of HAs to public water systems include planning for future treatment research and process upgrades and working with local health partners to develop risk communication messages to their customers. The Subgroup generally felt that the information and methods currently used by EPA to develop HAs are appropriate but believed that there should be a regular opportunity for input from stakeholders on a routine (maybe annual) basis on what are their priorities and needs for HAs. (This is echoed in additional recommendations concerning transparency and coordination in the next charge question.) The discussion involving revising HAs called for a periodic (maybe every 5-7 years) review of all existing HAs and transparency via the routine (maybe annual) request for input from stakeholders that will use or be impacted by new HAs. Also, revision should occur when new information becomes available. With these and other recommendations the Subgroup was sensitive to EPA's constraints in terms of resources and legal requirements and wants to find solutions that improve transparency and opportunity for input without interfering with or slowing down EPA's ability to produce HAs. When HAs are needed, they are needed quickly.

- What factors should EPA consider when prioritizing HAs?

The Subgroup discussed the factors that now go into selecting HAs and the importance of considering these factors (e.g. occurrence, toxicity, etc.). There seem to be many factors and each contaminant seems to be unique. Priority needs to come when there is sound science available and significant exposure to a contaminant with known harmful health effects is occurring. As described under the previous charge question, the issue was not that EPA's prioritization was flawed, but rather that it could be improved with input from stakeholders that use or are affected by HAs. The Subgroup considered how EPA could meaningfully involve stakeholders and consider their input. Meaningful input will occur when stakeholders know where EPA is in the process and when they are invited to comment at key points. In order to get meaningful involvement with all stakeholders, the Subgroup recommends creating a Listserv, or other mechanism that is appropriate given EPA's constraints, for all interested parties for HAs. Anyone could have access to the Listserv (i.e., request to join) and EPA could work with associations such as Association of State and Territorial Health Officials (ASTHO), Environmental Council of the States (ECOS), Association of State Drinking Water Administrators (ASDWA), American Water Works Association (AWWA), National Rural Water Association (NRWA), Association of Metropolitan Water Agencies (AMWA), National Association of Water Companies (NAWC), Environmental/public health groups, etc. to publicize it. This could let the stakeholders know on a periodic basis (maybe annual) what contaminants are being considered for Health Advisories, provide information on the status of HAs in process and, perhaps most importantly, provide an opportunity for review of a final draft so EPA can understand concerns and try to provide information in the HA for improved risk communication. EPA would consider all comments, but there would be no obligation to respond to the comments they receive.

- What factors should EPA consider when developing HAs? How and when is status communicated to key stakeholders, including states and utilities?

See input to previous charge question.

- What are core components that EPA can consider including in the HA?

EPA should consider a standard template for all HAs. The Subgroup understands that every HA is unique in terms of information available related to the contaminant but believes a template will improve the user's experience and remind EPA of the information that is generally needed by those using or affected by an HA. A common template should include what is in the template now as well as the following:

- Known sources of the contaminant;
- Transport mechanism;
- What is known about ability to analyze other media (e.g., surface water, soils, etc.);
- Likely importance to other state and federal regulatory programs (waste site clean-up, clean water act discharges, pesticide applications);
- What are the challenges remaining to have enough info to make a regulatory determination (e.g., occurrence, knowledge of other sources, treatment costs, etc.); and
- Suggestions concerning effective risk communication.

3. NDWAC Discussion, Questions, and Comments

Council members provided the following feedback regarding the Subgroup's input to the HA charge questions.

- Ms. Swallow noted that she thinks there should be an opportunity for meaningful response by the water system when a HA is developed. If a utility lacks critical treatment information or information on finding out where the source is, they are unable to respond effectively to deal with the HA.
- Mr. Sanchez noted that public trust is also something to consider. There is so much information out there on public drinking water and the public does not understand the difference between a regulated contaminant and a HA. He believes this is important to consider moving forward.
- Ms. Bruno noted that from her experience with perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) at utilities in Arizona, some utilities missed the UCMR data showing they had levels of PFOA and PFOS. Emergency meetings were called with the mayor for the utility service area, but there was a lack of guidance from Arizona or the Department of Environmental Quality on next steps and how to communicate with the community. Ms. Bruno stated that the development process should allow for stakeholder input and be more public.

- Ms. Christian noted that the Subgroup did suggest writing out the process so that everyone would understand.
 - Ms. Behl stated that this is something that has been written, but it has not been updated in a while. She agreed that the process could be written, especially since there are new changes that have been proposed.
 - Ms. Pillsbury asked Ms. Behl for her input on the changes that were proposed and if there was anything that seemed to be beyond the resources at EPA for HAs.
 - Ms. Behl responded that she did not see anything particularly alarming in what was proposed and that she understands the reasons for it. She noted that the public comment period will take more time and would slow the process down a little.
 - Mr. Burneson noted that many of the changes proposed would be changes in the process. He also noted that in the response to charge question number 2, the Subgroup noted an annual basis for input. This would require a change in the process.
- Ms. Chischilly asked if there could be a set of HAs for natural disasters. She noted how long it took for health assessments and wondered if there would be a difference in how EPA reacts for a natural disaster. For example, municipalities and tribes on a river system.
 - Mr. Burneson noted that this was a great question. He responded that there are different forms and durations of HAs. There is a lifetime HA to protect against exposure over a lifetime and a ten-day HA. In Ms. Chischilly's example, there was a bloom in a river system with intakes. A ten-day HA could answer questions about the short term. In natural disasters, it is usually untreated water. CDC would then provide guidance.
 - Mr. Salzman noted that the Subgroup spent a lot of time discussing the idea of a Listserv. He noted that he was not sure if it was possible for EPA to have this but recommend open-ended means of communication so that anyone could join. There would be no formal comment period and instead an informal announcement of the changes. This would allow for transparency but would not slow down the process.
 - Mr. Hill asked if EPA had heard of questions at the local level, whether from a utility or a health department, that are action-oriented and can be incorporated into the HA around sampling. For example, if someone had a certain number in a sample, then there is a process that is a directive. Are there questions about how that is being taken – whether it is an advisory or an actionable directive?
 - Mr. Burneson responded that in addition to standard technical information, a HA is always going to have information on the methods and treatment technologies. HAs will talk about the methods and treatment technologies that are out there. In the case of cyanotoxins, there was a stepwise list that included how water systems assess their source waters – they may want to consider switching to finished water or advise the public against use. For PFOA and PFOS, the NDWAC can provide feedback on whether

those HAs were helpful or not and help EPA to determine if the information is not being received or understood.

- Ms. Lewis noted that utilities want HAs to help them communicate with customers. She gave an example where the Portland Water District had levels of a compound greater than zero but well below the regulatory limit and the customers saw the numbers and trust factor did not improve. Ms. Lewis stated that maybe the HAs could help utilities better explain the risk.
 - Dr. Grevatt responded that it is not a matter of whether there is a regulatory value; an occurrence may have an impact on the community in terms of concern. EPA came to the NDWAC with these charge questions because they are challenging, and EPA has a shared commitment in protecting water quality. There is often the challenge of how to communicate, and EPA is looking to the NDWAC for any thoughts and input.
- Mr. Sanchez wondered if consumer confidence reports would be a better way for the utility to communicate so that it was not coming from EPA directly.
 - Dr. Grevatt noted that EPA shares information with utilities that is in a format for the consumer confidence report. EPA has heard from a number of states and some individual communities concerned about substances who need help from EPA in understanding how they should think about them. Dr. Grevatt noted that Mr. Sanchez's question relates to how utility communicates, but EPA also needs to think about how they provide information that is most useful to the customer, communities, and states.
- Ms. Pillsbury noted that a large part of communication is knowing what is important to communicate. Having input, particularly before a HA is issued, might help EPA understand the reaction to it and to help figure out what needs to be communicated. From a drinking water perspective, PFOS was unusual. There were other perfluorinated chemicals (PFCs) on the UCMR, and nothing was said about them. It might be helpful to receive input from users (waste sites or water utilities) before EPA puts the final word on paper that it is a HA.
- Ms. Kellon noted that one of the issues is trust with the utility and risk communication. The public will not know the difference between a HA and a regulated contaminant. She asked if EPA has the capacity to develop guidance language that is appropriate for communicating the significance of a HA (i.e., why should the customer care, what should they worry about) that the utility can use directly. There is often not enough clarity on the consumer level because if it is a health risk, the public wonders why it is not being treated.
- Ms. Bruno echoed the need for a transparent process and communicating risk. Ms. Bruno noted that giving a utility a heads up that a HA is coming would allow them to do proactive sampling and be helpful.
 - Ms. Swallow agreed. She noted that when HAB HA guidance came out, her state had a game plan as suggested by the guidance. This is what is needed when a HA comes out –

information on what a state or health department can say. When there is a situation where people have small PFOA issues and everyone is responding differently, the public sees this, and it causes a loss of confidence and trust.

- Ms. Pillsbury responded that the PFOA and PFOS HA was a wake-up call. Now utilities, drinking water programs, and waste clean-up programs are interested in what is happening with HAs. She suggests that EPA could communicate what HAs they are working on and why so that utilities can get in front of it.

F. Discussion of integrated water management

Mr. Sanchez opened the discussion of integrated water management by highlighting its importance in the face of climate change and the importance of recycling water to meet the country's needs. Council members discussed the following under this topic:

- Mr. Neukrug thanked Mr. Sanchez for opening the discussion and noted that there are actions that EPA can take, including integrating water management into wastewater practices via the Clean Water Act and evaluating how stormwater and combined sewer overflows (CSOs) can also contribute. He also noted that it is challenging for utilities to prioritize integrated water management with the available budget. Mr. Neukrug noted that drinking water systems are less likely to struggle with addressing integrated water management and more likely to deal with contaminants. He also noted that there is a separation between the Clean Water Act (CWA) and the SDWA that force utilities to prioritize funding on special initiatives, like green infrastructure, instead of investing in new infrastructure.
 - Dr. Grevatt asked for clarification on how legal matters and regulations impact utility decisions.
 - Mr. Neukrug responded that utilities only have so much money and can only raise so much capital to allocate to operations and maintenance and investment in infrastructure and capital improvement planning. Utilities make the decision to maintain older treatment plants and focus instead on sewers, since CSOs are bad and sanitary sewer overflows (SSOs) are worse. On the drinking water side, the same priority or push to change the treatment process is not present.
- Ms. Kellon noted that utilities in the Pacific Northwest are largely forested or rural with few landowners. There is an opportunity to achieve long-term conservation by working with smaller communities to evaluate their water infrastructure needs and leverage various financing options to address competing priorities. Source water is a large factor, since it provides lead time for communities to address plant upgrades that can improve water quality. Ms. Kellon continued that small towns often do not have staff available to look comprehensively at water infrastructure and implement potential solutions. She asked if the Council had examples from around the country where this has been successful, with an emphasis on small communities, and what the options were for supplementing their capacity for integrated water management.

- Mr. Sanchez asked what EPA's role might be going forward in the development of standards for potable re-use, since California is currently undertaking the development of standards.
 - Dr. Grevatt noted that Arizona is also developing state standards for potable re-use while Texas has evaluated them on a case-by-case basis. He highlighted El Paso as an example. Dr. Grevatt clarified that EPA does not have any regulations for potable re-use, although the Agency is currently developing a compendium of practices that states could use.
 - Mr. Sanchez again highlighted the concerns that the SDWA and the CWA may have contradictory language that is not current with how utilities operate; for example, erosion control is a regulatory issue for drinking water but a permitting issue for wastewater.

- Mr. Neukrug noted that it may not be an appropriate time to re-evaluate the CWA and the SDWA. Instead, he proposed that EPA should evaluate how to manipulate these two rules to make them more flexible for potable re-use purposes.
 - Dr. Grevatt responded by asking if the Council members had any specific ideas for EPA consideration. He highlighted examples of communities in Orange County, California and in Wichita Falls, Texas that have successfully navigated the regulatory barriers. Dr. Grevatt asked the Council to identify specific federal barriers.

- Ms. Swallow emphasized that stormwater discharge and direct re-use are relevant to large cities in terms of the capacity necessary to supply those communities. The SDWA addresses water systems that are not in large cities, which are approximately 95% of the nation's water systems.
 - Mr. Neukrug noted that he believes there are places in Rhode Island that could benefit from integrating environmental programs.
 - Ms. Swallow agreed but also emphasized that these systems may be small enough that RIDOH and DEM do effectively ensure integration of SDWA and the CWA.

- Ms. Pillsbury echoed Ms. Swallow stating that New Hampshire does not have any direct re-use examples and asked if EPA is aware of any issues with the existing MCL standard.
 - Dr. Grevatt responded that it was not his intention to imply that the states, rather than EPA, should address these standards. Although they are not duplicative, they may go above and beyond what is necessary to achieve the levels required under the SDWA. For example, in Orange County, California, the water is treated by a number of systems to improve its quality to almost that of distilled water. For systems that are trying to understand the risks of direct potable re-use, it may be difficult to identify which compounds should be the focus as these are very carefully managed systems.

G. Closing Remarks

Ms. Lewis thanked everyone for attending and noted that the public comment period would take place on Friday, December 8, 2017 at 11:30 am. She stated that this was a meeting that was open to the public, not a public meeting, and that comments should be registered. Commenters will be given three minutes to speak.

Dr. Grevatt noted that it has been a very interesting and provocative discussion and that he is looking forward to continuing during the second day of the meeting.

DAY 2

A. Opening Remarks

Ms. Ward opened the second day of the meeting by recognizing Ms. Bruno, Ms. Kellon, James McCauley, and Mr. Sanchez for their outstanding contributions to the NDWAC and presented them with plaques for their achievements. Ms. Ward also noted that the nomination process for new NDWAC members would begin in February 2018. Ms. Lewis and Mr. Grevatt echoed their appreciation for the members' insights and contributions to the team. Mr. Grevatt noted that although the terms are two years, there are opportunities to have multiple two-year terms.

Ms. Lewis outlined the process for the public to provide comments during the public comment period before briefly reviewing the highlights from the previous day, including the following key topics:

- Revisions to the LCR
- Lead in Schools
- Developing HAs
 - Intended use and understanding of HAs – utilities, states, public
- Integrated water management
 - The SDWA and CWA sometimes pose challenges

B. Discussion of Recommendations for HA Communications

Ms. Lewis opened the session by providing an overview of the discussion on HAs from Thursday, December 7, 2017. The Subgroup and the Council would like to recommend that EPA adopt additional transparency steps in the process of developing HAs and that input and review would be helpful but not to the point where it would slow the process down significantly. The Council agreed that HAs should be based on sound science and that this would be enhanced with review opportunities. EPA should also continue to provide information that is known but also outline what is not known. There was also an emphasis on risk communication.

The Council then discussed recommendations for HA communications.

1. NDWAC Discussion, Questions, and Comments

Council members provided the following comments and questions during the discussion of recommendations for HA communications:

- Dr. Hill noted that the CDC has experience with risk communications and that he would be open to assisting in the NDWAC process and providing additional support.
- Ms. Swallow noted that the Agency for Toxic Substances and Disease Registry (ATSDR) was developing PFOA and PFOS numbers, and that it would be great if EPA HA and other agencies would coordinate.
- Ms. Lewis noted that Mr. Burneson discussed a health-based reference standard during his presentation on December 7, 2017. She asked if he could expand on this.
 - Mr. Burneson responded that he had mentioned health-based reference standards during his discussion of the Lead and Copper revisions and UCMR 4. In the context of the LCR, Mr. Burneson was discussing the NDWAC recommendations to establish a health-based household action level. This would be a concentration associated with lead exposure that is of concern. In the context of UCMR, EPA publishes reference concentrations, which are health-based and provide context for the detection of a UCMR contaminant. These concentrations do not assume that the presence means a health risk.
- Ms. Pillsbury commented that one of the Subgroup recommendations was to establish a template that would outline known and unknown information in a template form. They believed this would be helpful for users as they would know what to expect and would be able to easily pull information from the form, and prompt EPA to think about analyzing other environmental media. She asked the council if they wanted to keep this in the recommendation.
 - Ms. Christian confirmed that the Subgroup had discussed this. She believed it would be helpful to know where to find information.
 - Ms. Lewis stated that she would add the request for a template to the recommendations.
 - Ms. Bruno asked if Ms. Pillsbury could explain what is known about the ability to analyze other media.
 - Ms. Pillsbury responded that drinking water is a clean media, and the methods in the HA are for drinking water. Being able to look at fish toxicity and other information can help us understand the ability to analyze other sources.
 - Ms. Lewis noted that matrices could be a better word than media to describe this.
 - Mr. Burneson stated that HAs have a section on analytical methods, but what is described is for drinking water, a cleaner matrix. When someone one is trying to figure out what the source of the contaminant might be, they may have to sample ambient

waters and soil matrices, which are not as clean. If there are analytical methods that exist for other media, the HA could describe these other methods. This would be an expansion of what is currently done.

- Ms. Pillsbury noted that this is important because there is no national ground water rule, and many states conducting waste site cleanups use HAs as part of their investigation to determine the contaminant source. HAs are not only used by drinking water programs.
- Ms. Bruno asked if HAs discuss the cost of treatment to lower the contaminant to HA levels.
 - Ms. Behl answered that HAs do not discuss costs. The treatment section of a HA instead focuses on what methods are available and lists generic information about treatment and efficacy. Ms. Bruno stated that if the HA does not tell you how to remove the contaminant, a utility is caught. Ms. Behl noted that risk communication comes in here.
 - Ms. Lewis noted that even though a HA is not a regulation, there are some expectations from water consumers that there is a real impact and that the water could be unsafe. This does not help utilities.
 - Mr. Burneson noted that HA do provide information on treatment technologies. A HA gives information on available technologies, but it is not an in-depth evaluation of field demonstrations or the costs. Ms. Lewis stated that this is a tough gap. Many utilities do not always like being regulated, but this allows more information to become available.
 - Ms. Pillsbury commented that HA could have standard wording on known and unknown information and what needs to be developed. She believes the HA should be a layperson explanation of this.
- Dr. Grevatt stated that there are many HAs that exist today for compounds for which EPA does not intend to set standards. Where these compounds occur they can be a concern, but there are low levels of occurrence throughout the country. The compounds do not necessarily warrant the development of a standard, but EPA wants to provide the information that is available to the public and to drinking water systems. Dr. Grevatt noted that Ms. Behl reflected that some HAs do not have the impact or attention that PFOA and PFOS have had, and there was something different either about the level of public awareness or concern about these compounds. Dr. Grevatt noted that EPA is interested in hearing more from NDWAC members in terms of balancing public input but not slowing down the process for HA.
 - Mr. Salzman noted that the Subgroup did not think that a HA comment period was appropriate, but that the balance was greater transparency. The Subgroup recommended a Listserv approach. Users with a concern could submit a comment, but since there would not be a formal comment, there would be no obligation for EPA to respond. Mr. Salzman noted that he was not sure of the legality of this approach from EPA's perspective.
 - Ms. Swallow noted that she thinks a balance means there should be enough information for health departments, utilities, and environmental agencies to track the source and for a water system to be able to treat it. She also wants to think of the impacts on food and

fish. When a HA is issued, health departments get questions about the safety of food every day. She stated that information on using the water on food products would be helpful, to the extent that it is available.

- Ms. Pillsbury noted that she agrees with Ms. Swallow's thoughts, and before PFOA and PFOS she would have backed this point. It is helpful to have this information, but if people are drinking the water and there are different numbers out there we are looking for a number from EPA's HA process. At a minimum, the HA should explain what is and what is not available and acknowledge if there are other standards.
 - Ms. Behl noted that EPA tries to include a summary of other standards. The events characterization section is meant to be a section where EPA describes what is known and the uncertainties of the advisory. However, it sounds like a bulleted list might be more helpful. For example, immunotoxicity was something that discussed, but not quantitatively. It could be characterized in terms of research needs.
 - Dr. Hill commented that when we think of treatment we should think of utilities, but also the public. The public wants to know if the water is safe and how they can protect themselves. Treatment information could help the public determine what actions are productive or counterproductive.
- Ms. Lewis summarized her notes and takeaway items from the discussion on HAs. She noted the following recommendations:
 - Transparency of steps in the process of developing a HA and communicating the steps when a contaminant is selected;
 - Input and review at milestones during the HA drafting process;
 - A HA should be based on sound science, and this is enhanced with a review opportunity;
 - A HA should provide all information that is known as well as information that is not known;
 - Create a template that is consistent for all contaminants;
 - Emphasize risk communication that can be easily understood; and
 - Recognize that while a HA is not a regulation, there are still expectations to be considered and the "real world" impact is important to consider.
 - Ms. Pillsbury noted that noting the importance of HAs to various groups is also important.

C. Improving Capacity through Water System Partnerships

Ms. Thompkins provided an overview of water system partnerships to give context to a group discussion on how partnerships can provide benefits to utilities and their communities, as outlined below.

1. Water System Partnerships: An Overview

Partnerships are one of the tools that can be used to optimize investments. Water system partnerships enable struggling systems to provide safe, reliable, and affordable water to their communities. Public

water systems are defined as systems having at least 15 service connections or that serve an average of 25 people for at least 60 days a year. Ms. Thompkins provided an inventory of small public water systems noting that 97% of all public water systems, of which there are 150,000, serve less than 10,000 people. Ms. Thompkins noted that 83% of community water systems serve less than 3,300 people and 94% of all non-community water systems serve 500 people or less. Community water systems serve the same group of people year-round; non-community systems are those that serve places like schools and gas stations and campgrounds.

Medium and small water systems face challenges, such as:

- Securing funding for operators or infrastructure
- Limited/poor source quality/quantity water
- Diseconomies of scale
- Rate structures that do not cover the current and future costs of providing service; and
- Limited ability to access or explore financial options

Medium and small systems need technical, managerial, and financial assistance to plan for the future, especially since many of the customers are on a fixed income. Raising rates in these communities to invest in personnel or infrastructure may not be an option. The average annual operating cost per capita for small systems is much higher than the average annual operating cost per capita for a large system. These expenses include: personnel, purchased water, repairs/maintenance, supplies, administrative/insurance, depreciation, etc.

Partnerships can provide additional technical, managerial, and financial capacity and provide additional resources and technology. There are a number of different types of water system partnerships, as demonstrated in **Figure 6** below:

Water System Partnerships

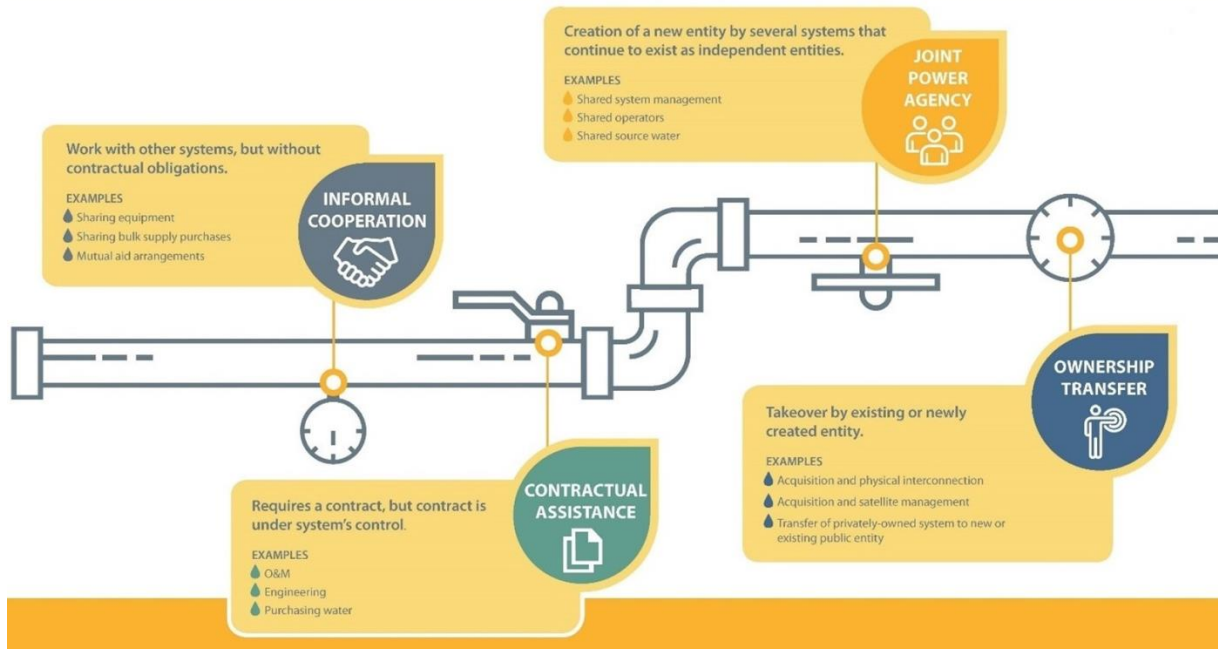


Figure 6. Four Types of Water System Partnerships

Informal Cooperation partnerships work with other systems without contractual obligations. Some examples include: sharing equipment, sharing bulk supply purchases, and mutual aid arrangements.

Contractual Assistance partnerships require a contract, although the contract is under the system's control. Some examples include: operations and maintenance, engineering, and purchasing water.

Joint Power Agency partnerships create a new entity by combining several systems together that continues to operate as independent entities. Some examples include: shared system management, shared operators, and shared source water.

Lastly, Ownership Transfer partnerships occur when a takeover occurs by either an existing or newly created entity. Some examples include: acquisition and physical interconnections, acquisition and satellite management, and transfer of privately-owned systems to new or existing public entities.

Partnerships offer many benefits for the system, the state program, and the customer. System benefits can include: economies of scale, long-term savings, improved customer service, planning for future operations, and increased technical, financial and/or managerial capacity. State program benefits can include: improved compliance, a potential reduction in the number of regulated systems, resource savings, and improved customer relations. Customer benefits can include: improved water quality, reduced long-term costs and lower water bills, and an increase in the reliability of the supply.

2. NDWAC Discussion, Questions, and Comments

Ms. Thompkins asked the NDWAC to provide examples of where they have seen the benefits of water system partnership in their work. Council members provided the following feedback:

- Ms. Lewis opened the discussion by highlighting a partnership example from Maine where a group of six or seven utilities formed a regional group for a number of benefits. The group collectively bids for chemicals to secure reduced prices and has set up interconnection points between the utilities to facilitate the sharing of water resources. A new drinking water plant is being designed to further connect the utilities to provide services to the surrounding communities in the event of a disaster. Ms. Lewis noted that the utilities have found it be of great value.
 - Ms. Thompkins asked if there were any barriers to forming the regional group.
 - Ms. Lewis noted that the group formed before she began working in Maine, so she was not sure of any specific barriers to its formation.
- Dr. Grevatt emphasized to the Council members that the discussion was meant to identify how EPA might facilitate additional systems to form partnerships and asked if the Council members are aware of any efforts of partnerships forming among utilities that face capacity issues. In particular, if the utilities form a partnership, does that now create a larger entity that still faces capacity issues.
 - Ms. Lewis responded that in her Maine example, the individual utilities were not struggling to meet capacity but saw benefits from collaborating.
- Ms. Christian noted that in the Houston area there were utilities that needed to be moved off of ground water as their primary source. For years the utilities fought to maintain their independence from the City of Houston and argued that the best approach was to continue to drill deeper for ground water and address the water quality issues through desalination. The regional water system includes 300 small systems that are now working together to supplement their water supply with surface water from the City of Houston.
 - Ms. Thompkins asked if the main reason the utilities were resistant to forming partnerships was related to a concern of autonomy and independence.
 - Ms. Christian confirmed that it was a concern for loss of independence as well as a concern of higher rates, since the increased cost of the surface water is passed on to their customers. Some areas formed small partnerships to work with the city for reduced prices, which also made it easier for the city to work with them rather than working with 300 individual systems.
- Ms. Pillsbury highlighted an example where a single operator recognized the benefits of utilizing asset management for multiple towns in tandem. The New Hampshire Department of Environmental Services provided seed money for the asset management work and expanded

the approach to other systems noting that there are contract operators that work across multiple systems. These operators could provide asset management services across the systems, which would be low hanging fruit for creating economies of scale for purchasing, etc.

- Mr. Sanchez noted that the local political environment can be a barrier when asking a water system to assist a small system. In New Mexico, for example, assistance for another system usually indicates that the system is going to be taken over and will lose control. Albuquerque Water Utility Authority set up a peer-to-peer mentorship program to match utilities that are requesting assistance with a system that can provide that mentorship, whether online or direct.
 - Ms. Thompkins confirmed that this peer-to-peer system is a current EPA initiative highlighting a new interactive partnership website that will be a one stop shop for communities and states to peruse ideas on partnerships and case studies on different types of partnerships. These case studies will provide information about the utility and its example as well as a point of contact. EPA will continue to work with technical assistance providers to foster partnerships and continue to help communities.

- Ms. Swallow provided her experience in Rhode Island noting that there has not been much success with partnerships. While these other examples of what others have done are helpful, it underscores how resource intensive and system specific building partnerships are. Tools could be helpful; however, setting aside funding to provide the necessary resources may be more helpful, even if the return on investment may not be as large. The tools tend to be tailored to larger systems than the ones that Ms. Swallow is encouraging to partner up in Rhode Island.

- Ms. Bruno commented that one of the examples in the presentation noted that partnerships would benefit customers by lowering water bills. The increment of the increase will be smaller than without the partnerships, but the bills will likely still increase. There is a concern that the utility that provides assistance may be liable for the existing water quality problem and effectively be punished for that good deed.

- Ms. Thompkins noted that the EPA had recently updated the DWSRF set asides compendium, which is now available online.¹⁶ It provides examples from nearly all states to demonstrate how the set-asides were used.

- Mr. Salzman highlighted a project at the University of California Los Angeles that evaluates the impacts of a 2015 mandatory consolidation legislation. The project's results found that there are less than a dozen consolidation projects taking place due to concerns of liability.
 - Dr. Grevatt noted that EPA is more interested in partnerships and arrangements that go beyond consolidation and asked the Council members if they had any ideas on how to

¹⁶ More information on the use of DWSRF set-asides is available at: <https://www.epa.gov/dwcapacity/use-drinking-water-state-revolving-fund-dwsrf-set-asides>

lower the entry costs for partnerships, whether through liability protection or through or some degree of enforcement flexibility.

- Ms. Kellon noted that research had been conducted a couple of years ago to determine how water partnerships are formed, highlighting that it was smaller communities' drinking water and wastewater systems that formed these relationships due to geographic proximity. These situations also made it easier to combine operations partnerships and consolidate. The research also found that the largest barrier related to loss of autonomy and independence, in addition to concerns that the partnerships might illuminate existing capacity issues and management shortcomings. The survey was a comprehensive study of the Oregon coast and is available if EPA is interested in reviewing the findings. One particular case study highlights how half a dozen utilities invested in a source water protection coordinator to conduct protection outreach to communities pulling from the same source water. By pooling their resources, the utilities are able to allocate a full-time resource to this outreach and education protection need where individually they would not be able to provide this service.
- Mr. Neukrug referred back to the earlier discussion of providing compliance assistance before enforcement noting that the key to success is ensuring the utility manager is aware of the system challenges and existing issues. By knowing the problem, utility managers can identify potential partnerships with those that may have similar issues or challenges. For example, there are a number of projects centered around the Great Lakes and some in the lower Susquehanna to bring smaller systems together and ask utility managers three simple questions:
 1. What are your challenges?
 2. What are your successes?
 3. What are your needs in the next five years?
 - Mr. Neukrug also emphasized the need for an asset management plan, citing New Jersey as an example of a state with many large private systems available for assistance. Mr. Neukrug noted that they have been using Sierra Club and Clean Water Action to make those connections, provided the utility manager has time for planning activities.
- Mr. Alley asked what Dr. Grevatt was referring to when he used the term compliance flexibility.
 - Dr. Grevatt responded that EPA is looking to provide technical and compliance assistance to struggling systems as a first step rather than taking an enforcement action. If a partnership can resolve the issue, then it may be more desirable to explore a system partnership. Dr. Grevatt asked the Council members how to facilitate that process so that the assisting utility is not punished.
- Ms. Kellon noted that one challenge relates to a lack of understanding of the asset management needs; without a big picture of where capital investments are needed, it is difficult to encourage partnerships or be innovative in overcoming specific challenges. There is a need to understand

infrastructure needs for the next 15-30 years at a higher level to identify and address the associated disincentives. Identifying the problem first allows for creative solutions.

- Ms. Thompkins noted that she appreciated the input that was provided.

- Dr. Grevatt noted that visionary leaders, including boards, operators, or local elected officials, make a difference across a variety of areas, such as asset management, partnerships, and level of performance from water system regardless of size. There are examples of systems both small and large where individuals are going above and beyond what is expected to provide service to their community. These examples could be a new mayor, elected official, or operator who understands the system needs. Dr. Grevatt then asked the Council members how to promote these visionary leaders and noted that many of them have served on the NDWAC in past years.
 - Mr. Neukrug responded that this is a local issue, since smaller systems tend to need to work one on one and highlighted that innovative, aggressive utility managers are the ones who are evaluating their assets and ensuring water quality and service is maintained.
 - Mr. Sanchez echoed this thought by proposing a recognition program from the EPA that is similar to the National Association of Clean Water Agencies' (NACWA) Water Resources Utility of the Future program. EPA could identify one utility in each state on a yearly basis.
 - Dr. Grevatt responded to this proposal by noting that EPA participates in AWWA's Safe Water Awards every year. The individuals who receive these awards are very proud of their systems, so EPA and the NDWAC should look to leverage that and celebrate partnerships.

D. Public Comment

During the final session on Day 2, December 8, 2017, the Council members heard public comments from registered commenters. Comments that were received in writing were circulated to Council members. The comments are summarized below:

1. William (Bill) Hirzy (Fluoride Action Network)

Bill Hirzy noted that he was a former EPA employee and expressed his concern about the fluoride levels in water. He believes that the current MCL and MCLG of 4.0 mg/L does not meet scientific integrity and is not appropriate. Dr. Hirzy referenced papers and studies that demonstrated intelligence quotient (IQ) drops in children that were exposed to fluoride. He referenced a paper that was published in September 2017 that was funded by the National Institute of Environmental Health Sciences (NIEHS) that found when pregnant women had 0.5 mg of fluoride in their urine offspring suffered a 3point drop in their IQ. Dr. Hirzy expressed concern that fluoride was deemed a low priority by EPA and commented that it was urgent for EPA to establish a lower MCLG for fluoride.

2. Ellen Connett (American Environmental Health Studies Project)

Ellen Connett expressed that she shared the belief that everyone in this country should have safe drinking water. Ms. Connett brought up the 3rd Six-Year Review that Mr. Burneson discussed during his presentation. She noted that the review was a “proposed rule” and that public comments were solicited. Ms. Connett called the Office of Water to inquire about the proposed rule but was told that it was a final rule and that there would not be a response to her comment. She expressed concern that the summary of the proposed rule stated that it was not a final regulatory decision. Ms. Connett expressed her frustration with not receiving responses for her public comments in 2011 on risk assessments pertaining to reducing the level of fluoride in drinking water and urged EPA to respond to comments received.

3. Paul Connett (American Environmental Health Studies Project)

Paul Connett expressed his concerns over the public comment period and suggested that the comment period be extended from three minutes.

Dr. Connett provided comments in a letter that was provided to the Council. He asked Mr. Burneson if the safe reference dose (RfD) of fluoride (0.08 mg/kg/day) that was published in a preliminary risk assessment by EPA was used to finalize a new proposed MCLG or MCL. If it has not, he asked when a new rule could be expected.

Mr. Burneson stated that on January 11, 2017, the Agency published a Six-Year Review and concluded that fluoride revision was not appropriate. The Agency does not have plans to revise the standard at this time; the existing standard remains in effect.

Dr. Connett expressed his frustration that EPA declared fluoride a low priority and asked if EPA could provide scientific evidence that negates the concerns about fluoride’s neurotoxicity. He believes EPA’s actions on lead and perchlorate stand in contrast to their actions of fluoride.

4. Steve Via, American Water Works Association (AWWA)

Steve Via mentioned that along with providing in-person public comment, he also submitted a letter that was provided to attendees. Mr. Via thanked EPA for the opportunity to comment and noted that AWWA commends EPA on their work on cyanotoxins. Mr. Via stated that AWWA and the water supply community have concerns about EPA’s process for preparing, developing, and disseminating HAs. AWWA encourages EPA to engage stakeholders in developing HAs. Mr. Via stated that there is adequate time to engage the public, informed stakeholders, and those responding (e.g., states and utilities) before a HA is issued. Mr. Via referenced the points in his submitted letter and expressed concern for rapidly released HAs that stakeholders have not had the opportunity to review.

Mr. Via also noted that EPA should avoid situations where HA appear to be regulation or guidance and HA development should meet the expectations of Office of Management and Budget guidelines. He also

stated that stakeholders and nongovernmental organizations (NGOs) should be actively involved and engaged when the Agency develops educational materials. Vetting response strategies with practitioners and demonstrating analytical method and treatment performance are also important actions in improving the HA process.

F. Closing Remarks

Ms. Lewis closed the meeting by thanking the Council and EPA for providing meaningful comments and insight on important issues facing the water sector.

ATTACHMENT A

NDWAC Meeting

List of NDWAC Members and Liaisons

December 2017

NDWAC Members
Carrie M. Lewis (Chairperson): General Manager, Portland Water District
William Alley: Director of Science and Technology, National Ground Water Association
Jeanne-Marie Bruno: Vice President/General Manager, Central Basin Liberty Utilities
Ann Marie Chischilly: Executive Director, Institute for Tribal Environmental Professionals
Marilyn Christian: Manager, Environmental Health Programs, Harris County Public Health and Environmental Services
Cathy P. Kellon: Green Infrastructure Program Director, Geos Institute
James McCauley: Manager, Lower Brule Rural Water System
Wilmer Melton, III: Director of Public Works, City of Kannapolis
Randy A. Moore: President, Iowa American Water
Howard M. Neukrug: Principal, CASE Environmental LLC
Sarah Pillsbury: Administrator, Drinking Water and Groundwater Bureau, New Hampshire Department of Environmental Services
James Salzman: Donald Bren Distinguished Professor of Environmental Law, Bren School of Environmental Science and Management, University of California, Santa Barbara
Mark S. Sanchez: Executive Director, Albuquerque Bernalillo County Water Utility Authority
June Anne Swallow, P.E. (Awaiting Appointment): Chief, Rhode Island Department of Health, Center for Drinking Water Quality
Chris J. Wiant: President and CEO, Caring for Colorado Foundation
Liaisons
Dr. Kimberly L. Jones, Ph.D.: Professor and Chair, Department of Civil Engineering, Howard University
Dr. Vincent Hill, Ph.D., PE: Acting Branch 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 7-8, 2017

First Name	Last Name	Affiliation
William	Alley	National Groundwater Association
Victoria	Banus	U.S. Environmental Protection Agency
Nikki	Bass	U.S. Environmental Protection Agency
Lara	Beaven	Inside EPA
Elizabeth	Behl	U.S. Environmental Protection Agency
Eric	Bissonette	U.S. Environmental Protection Agency
Miranda	Brannon	U.S. Air Force
Jeanne-Marie	Bruno	Central Basin Liberty Utilities
Eric	Burneson	U.S. Environmental Protection Agency
Tim	Cansler	Cansler Consulting
Ann Marie	Chischilly	Institute for Tribal Environmental Professionals
Marilyn	Christian	Harris County Public Health and Environmental Services
Ellen	Connett	American Environmental Health Studies Project
Paul	Connett	American Environmental Health Studies Project
Adam	Cooper	American Water Works Association
Whitney	Glaccum	Noblis
Peter	Grevatt	U.S. Environmental Protection Agency
Vincent	Hill	Centers for Disease Control and Prevention
J. William	Hirzy	Fluoride Action Network
Lisa	Huff	U.S. Environmental Protection Agency
Mike	Keegan	National Rural Water Association
Cathy	Kellon	Geos Institute
Carrie	Lewis	Portland Water District
Maria	Lopez-Carbo	U.S. Environmental Protection Agency
Lauren	Mayer	U.S. Environmental Protection Agency
James	McCauley	Lower Brule Rural Water System
Howard	Neukrug	Philadelphia Water Department
Joseph	Neukrug	N/A
Darrell	Osterhoudt	Association of State Drinking Water Administrators
Roberta	Person	U.S. Navy
Sarah	Pillsbury	New Hampshire Department of Environmental Services

First Name	Last Name	Affiliation
Bianca	Poll	Rural Community Assistance Partnership
Kayleigh	Queyquep	George Washington University
Crystal	Rodgers-Jenkins	U.S. Environmental Protection Agency
James	Salzman	University of California, Santa Barbara
Mark	Sanchez	Albuquerque Bernalillo County Water Utility Authority
Stephanie	Schlea	Association of Metropolitan Water Agencies
David	Schultz	Bloomberg Environmental
Jamie	Strong	Institute for Tribal Environmental Professionals
June Anne	Swallow	Rhode Island Department of Health
Anita	Thompkins	U.S. Environmental Protection Agency
Lynn	Thorp	Clean Water Action
Diane	VanDe Hei	Association of Metropolitan Water Agencies
Steve	Via	American Water Works Association
Tracey	Ward	U.S. Environmental Protection Agency
Wendy	Wilkes	American Water Works Association

ATTACHMENT C

NDWAC Meeting

Agenda

DAY 1: Tuesday -- December 7, 2017		
9:30 – 10:00	Registration	DFO – Tracey Ward
10:00 – 10:30	Opening and Welcome Introductions Review Agenda	DFO – Tracey Ward Chair – Carrie Lewis OGWDW Director – Peter Grevatt
10:30 – 11:15	OGWDW Program Update	OGWDW Director—Peter Grevatt
11:15 – 11:45	Standards and Risk Management Program Update	SRMD Director – Eric Burneson
11:45 – 1:00	Lunch	Everyone
1:00 – 1:45	Drinking Water Protection Program Update	DWPD Director—Anita Thompkins
1:45 – 2:45	Health Advisory Communications Review of Charge and Work Group Discussion	Chair – Carrie Lewis Marilyn Christian SRMD Director – Eric Burneson OST – Elizabeth Behl
2:45 – 3:00	Break	Everyone
3:00 – 4:00	Discussion of integrated water management	Mark Sanchez
4:00 – 4:15	Closing Remarks	Chair – Carrie Lewis OGWDW Director – Peter Grevatt DFO – Tracey Ward

DAY 2: Wednesday -- December 8, 2017		
8:45 – 9:00	Opening Remarks	Chair – Carrie Lewis
9:00 – 10:00	Discussion of Recommendations for Health Advisory Communications	Chair – Carrie Lewis and NDWAC WG
10:00 – 11:30	Improving Capacity through Water System Partnerships	DWPD Director – Anita Thompkins
11:30 – 12:15	Public Comment Period	DFO – Tracey Ward
12:15 – 12:30	Closing Remarks	Chair – Carrie Lewis OGWDW Director – Peter Grevatt