

National Drinking Water Advisory Council Public Meeting
U.S. Environmental Protection Agency
Wednesday, December 2, 2020, 1 – 5 p.m. Eastern Time
Location: Online only.

Meeting Summary

The National Drinking Water Advisory Council's (NDWAC) Designated Federal Officer (DFO) Elizabeth Corr opened the meeting and introduced the NDWAC's Chair, Carrie Lewis, General Manager of the Portland Water District in Maine.

Chair's Welcome: Carrie Lewis, NDWAC Chair.

Ms. Lewis thanked everyone for joining the NDWAC's first virtual meeting. At her request NDWAC members William Alley, Scott Borman, John Brady, Alexandra Campbell-Ferrari, Anne Marie Chischilly, Lisa Daniels, Saeid Kasraei, Wilmer Melton, Randy Moore, James Proctor, June Swallow, Jeffrey Tiberi and Macaroy Underwood, and Centers for Disease Control liaisons to the NDWAC Arthur Chang and Vincent Hill, introduced themselves.¹

Office Director's Welcome and Program Update: Jennifer McLain, Office of Ground Water and Drinking Water Director, U.S. Environmental Protection Agency.

Dr. McLain welcomed Ms. Lewis and the Council members and CDC liaisons and provided opening remarks around the shared mission of providing safe water; the importance of partnerships during the pandemic, including recognition of EPA's collaboration with federal, state, local, tribal, industry, and NGO partners; recognition of the water workforce and the efforts of utilities and state and local governments during the pandemic; and EPA's support of ordinances put in place to ensure that citizens weren't cut off from drinking water supplies.

Ms. Lewis spoke briefly about the unexpected nature of the pandemic.

Support for the Water Sector During the COVID-19 Pandemic and Council Discussion: Anita Thompkins, Drinking Water Protection Division (DWPD) Director, and David Travers, Water Security Division (WSD) Director, U.S. Environmental Protection Agency; and Carrie Lewis, NDWAC Chair.

Ms. Thompkins stated that she would focus on four areas: water services; partnerships; support EPA has provided for tribes; and new norms during the pandemic. She spoke about how water is critical for public health protection, the need to ensure fully operational water services, and the importance of drinking water system operators; and noted EPA's support for the adoption of practices to discontinue service cut-off, restore service, and refrain from imposing non-payment penalties. Ms. Thompkins next talked about partnerships, sharing an example of a National Rural

¹ The roster of attending Council members and Centers for Disease Control is attached (page 14).

Water Association (NRWA) effort to identify volunteer operators to assist water systems if needed in the pandemic, and recognized efforts of other partners including the Association of State Drinking Water Administrators (ASDWA), Rural Community Assistance Program (RCAP), the American Water Works Association (AWWA), National Rural Water Association (NRWA), Water Emergency Response Networks (WARNs), environmental finance centers, and federal and state partners. Ms. Thompkins also discussed EPA's work with the Tribal Infrastructure Task Force to provide information to tribal drinking water and wastewater systems and with the Navajo Nation Water Access Coordination Group to provide access to drinking water on the Navajo Nation during the pandemic.

Ms. Thompkins talked about new norms, noting the transition to American Iron and Steel virtual site visits as an example. She noted existing flexibilities under the Safe Drinking Water Act (SDWA) for certain rules, as explained on EPA's website, to support public water system compliance during the pandemic; and emphasized that a water system must obtain primacy agency approval to use the flexibilities. She noted deadline extensions for states under the Water Infrastructure Improvements for the Nation (WIIN) grant; and described switching to virtual public hearings for underground injection control (UIC) permits. She noted EPA efforts to provide resources and tools to support water sector operational and lab capacity needs and discussed efforts to provide information on funding tools, including a tool to help water utilities assess financial impacts from COVID-19. She also shared that EPA is working with federal, state, and local partners to develop new and emerging wastewater monitoring technologies for COVID-19 detection; and discussed guidance for maintaining or restoring water quality in buildings with low or no use that EPA developed to support safe re-openings.

Mr. Travers explained that he would provide an overview of his division's efforts to assist drinking water and wastewater systems in contending with consequences of the pandemic, with a focus on operational integrity of water utilities. He highlighted two major potential impacts—effects on the water sector workforce and supply chain—and discussed EPA's pandemic incident checklist, published at the end of March and added to the mobile application "Water Utility Response On-The-Go." He described a collaboration with the Department of Homeland Security on the definition of the water sector workforce in Essential Critical Infrastructure Workforce guidance and a letter from the EPA Administrator to governors and tribal leaders to ensure awareness of the essential workforce designation; as well as a fillable template developed by EPA that water utilities and suppliers can use to explain that the bearer should be considered an essential worker. Mr. Travers next talked about supply chain issues, including a collaboration with the Department of Energy with input from the Association of State Drinking Water Administrators to publish a map of potential CO₂ manufacturing and supply sources. Mr. Travers also noted ongoing work with the Department of Commerce and the Federal Emergency Management Agency (FEMA) regarding potential options under the Defense Production Act and SDWA as remedies to supply chain issues; and described a collaboration with FEMA in coordination with WARN chairs and state drinking water and wastewater primacy agencies to ship cloth masks for the water sector workforce. Mr. Travers described a survey that EPA launched in October to assess retrospective and potential effects of the pandemic on the water sector; and noted that EPA is holding state-level webinars to facilitate sharing of lessons learned and experiences during the pandemic among water utilities and their emergency response partners. In closing, Mr. Travers discussed CDC's recently updated COVID-19 vaccination

program interim playbook, indicating that EPA's focus is on Phase 1b where the water sector workforce is. EPA concurs with this designation and is looking for avenues to amplify this message with the states and others.

Ms. Lewis noted that she still has her Essential Critical Infrastructure worker letter in her car if she needs to use it. She thanked EPA for the cloth masks and urged EPA to keep working to get water sector workers high on the list for vaccines.

Mr. Brady described his utility's experience of how having a vulnerability assessment and emergency response plan, required by the Bioterrorism Preparation Response Act of 2002, as well as doing tabletop exercises, had prepared them for the pandemic; and noted drinking water industry, EPA, and CDC support.

Ms. Campbell-Ferrari described her organization's tracking efforts related to providers that have restored and refrained from cutting off services and said that less than half of states had put statewide water shutoff moratoriums in place in light of COVID. She acknowledged the financial stress on water providers and asked whether there has been consideration of making sure that if a financial grant is given to water providers that they are prohibited from cutting off services, particularly to low-income families. Ms. Thompkins replied that EPA supports and would continue to support systems not cutting off services. She recommended EPA's website and environmental finance centers for information on financial incentives and best practices and explained that EPA is providing resources for states and utilities and from there trying to increase support for decisions not to cut off services.

Dr. Hill talked about the CDC-EPA partnership around coronavirus and COVID prevention related to water and wastewater and environmental cleaning and disinfection. He referred to EPA's guidance on reopening buildings and flagged CDC's interest in water management programs and Legionella and mold prevention. He noted CDC's coronavirus prevention webpage for reopening buildings after prolonged shutdown.

Ms. Chischilly requested a listing of activities that EPA is working on with tribes regarding access and other issues. She thought another upcoming issue that will become of importance in the next wave, because of the rush to get access to water out to the Navajo Nation, would be maintaining those systems; so having guidance on that would be really helpful. She noted that she could get information out to all the communities through the National Tribal Water Council information site. Ms. Thompkins thanked Ms. Chischilly and said that they will keep her abreast of those things. She noted that there is a lot of information on EPA's website and committed to follow up when there is additional information.

Ms. Daniels reiterated that the entire water sector stepped up and responded to the pandemic. She discussed how Pennsylvania had put safety nets in place in March to adjust in the pandemic and shift to telework. She noted efforts to ensure communication with all of their water systems and labs and with their certified operators to ensure everybody knew how to reach them and to be aware of any staffing issues or supply chain shortages; and noted as a testament to the entire sector that they did not see major problems. She mentioned a survey they did to identify operators willing to assist other water systems in Pennsylvania, with almost a thousand

volunteering in the drinking water and wastewater sectors; shared that they are getting ready to do a second survey as COVID case counts continue to increase; and indicated that they have not had to activate use of the list but want it in place as a safety net. Ms. Daniels indicated that she was impressed by EPA's work on additional guidance for building water quality, which they identified early on with state-wide shutdowns in Pennsylvania. She explained that they decided to move forward with some checklists and requirements for non-community water systems that had closed and described borrowing from work under the Revised Total Coliform Rule to develop checklists for startup procedures that are broader than bacteriological quality.

Drinking Water Protection Division (DWPD) Program Updates and Council Discussion: Anita Thompkins, DWPD Director, U.S. Environmental Protection Agency, and Carrie Lewis, NDWAC Chair.

Ms. Thompkins stated that she would provide a fiscal year 2020 update of the division's work in its funding programs, agency priority goals for systems in noncompliance with health-based standards, underground injection control permitting, work under AWIA, and next steps. She described her division's responsibilities under the SDWA and depicted funding programs as the foundation and technical and managerial inputs as the pillars in achieving water system compliance.

Ms. Thompkins highlighted three WIIN grant programs: voluntary lead testing in schools and childcare facilities; assistance for small and disadvantaged communities; and reduction in lead exposure in drinking water. She noted awards for the voluntary lead testing in schools and childcare facilities grant were made to all 50 states and D.C. as well as American Samoa, Puerto Rico, and the Virgin Islands; and noted that there is a \$4.3 million tribal allotment. She mentioned the extended application deadline for the small and disadvantaged grant program. She described EPA's plans to dedicate around \$20 million under the assistance for small and disadvantaged communities grant program to infrastructure projects to improve access to safe drinking water for American Indian and Alaska Native populations. Ms. Thompkins also described the reduction in lead exposure in drinking water grant, focused on lead service line replacement and remediation, and shared that in October 2020 EPA announced first-ever selections under this program; and noted a \$3 million tribal allotment to be implemented through interagency agreements with the Indian Health Service.

Ms. Thompkins described how the Drinking Water State Revolving Fund (DWSRF) had an exceptional state-federal fiscal year regarding projects funded and disbursements; and flagged the significance of disbursement for construction activity, public health protection, jobs, and the local, state, and national economy. She also noted the investment in set asides, which help provide technical and managerial capacity needed for a system to receive DWSRF funds. Ms. Thompkins described the Additional Supplemental Appropriations for the Disaster Relief Fund (ASADRA) program focused on resiliency projects in six states and the Northern Mariana Islands and described states' use of the Water Infrastructure Fund Transfer Act (WIFTA), a one-time authority that state programs could use to transfer money from their clean water to their drinking water state revolving funds as additional subsidy for projects focused on lead in drinking water. Ms. Thompkins also gave updates on source water protection activities, flagging the 2018 Farm Bill requirement that at least 10 percent of conservation program funds go towards source water protection and noting that in fiscal year 2019 the program spent 12 percent;

and describing her division's partnership with the Natural Resources Conservation Service. She mentioned AWIA provisions that expanded source water protection activities for which states can use DWSRF set aside funds and discussed how more source water protection can mean less treatment and better water quality.

Ms. Thompkins next described the status of the agency priority goal to reduce the number of community water systems in noncompliance with health-based standards. She described working on in-depth rule implementation analysis with states to understand challenges and develop a best practices report to help improve compliance and noted that virtual training will start in the new year. Ms. Thompkins discussed another priority goal focused on reducing the average timeframe for processing UIC Class II direct implementation permits, which had been averaging about 513 days, to 180 days, with permits now averaging about 170 days. Ms. Thompkins transitioned to the AWIA of 2018, noting changes to the DWSRF program to allow more additional subsidy and an extended repayment period for disadvantaged communities; and flagged AWIA's grant authority related to the water sector workforce. She also discussed EPA's water sector workforce initiative announced in October 2020 and indicated that more information about the initiative can be found on EPA's website.

Ms. Thompkins then focused on looking ahead, noting that the Drinking Water Infrastructure Needs Survey is going through final review with data collection anticipated to begin in early 2021. It will be one of the most comprehensive to date. She also mentioned plans to provide guidance, technical assistance, and training once the Lead and Copper Rule revisions are finalized. She mentioned AWIA's Water System Restructuring Assessment Rule and noted that her division is working to develop the proposed rule. In closing Ms. Thompkins touched on the Evidence-Based Policymaking Act of 2018 and shared that EPA is focused on a Drinking Water Learning Agenda with two specific questions for fiscal year 2021: Does EPA have ready access to data to provide reliable and accurate measuring of drinking water compliance; and what factors determine system noncompliance and optimal performance?

Mr. Brady shared that he was thrilled to see the workforce initiative launched in October 2020. He explained that he had looked at all 50 state operator certification programs as part of a volunteer project that he is working on in the Philippines and concluded that there is tremendous emphasis on work experience, yet no measure or means to confirm that it led to competency. He also found that most states do not specifically require training prior to taking the test; they look at high school education and years of experience. He felt those are two major things missing to develop the workforce optimally. He also looked at the Department of Labor's (DOL) Industry Recognized Apprenticeship Program and thought that the programs described there have almost all of the pieces except the two elements of a defined level of training prior to taking the test and a means to show experience with hands-on techniques such as how to measure chlorine residual or repair a pump. He asked if EPA is talking to DOL about expanding the apprenticeship program to address that. Ms. Thompkins responded that DOL was a partner in developing the workforce initiative and noted that EPA is working with DOL on utilization of their competency model; and mentioned an apprenticeship program that NRWA has been piloting.

Ms. Swallow talked about the evidence-based effort with respect to rulemaking and water system non-compliance, noting that states may have some very detailed stories about case-based reasons

for noncompliance but she did not know how that information might be transferred to EPA. She recognized the concern but thought that it would lead to requests for data that are not easily documented and wondered how Ms. Thompkins thought EPA will proceed in terms of drinking water rulemaking and evidence-based issues. Ms. Thompkins clarified that EPA's focus is on the compliance data and whether the data provide enough information to determine whether a system is in noncompliance and has optimal performance. She confirmed that at this time the questions aren't affiliated with rulemaking. Dr. McLain added that EPA is in the very beginning of the program and sees it as incremental starting with analysis of data on hand; and suggested as an example that having some case studies might be helpful. She indicated that EPA will be looking to talk to states as the agency sets up implantation of the analysis.

Mr Underwood described work in 2017 or 2018 with Jim Horne of EPA's Office of Wastewater Management to develop a partnership program to help community systems in the Birmingham region comply with regulations and asked Ms. Thompkins if she knew if that process had started and if there had been headway. Ms. Thompkins was not sure but noted that EPA's partnership toolkit might be very similar. She described the toolkit's focus and noted that "partnerships" does not always mean consolidation or regionalization—it could be actions such as sharing an operator or accounting systems. Mr. Underwood said that he raised it because Ms. Thompkins talked in her presentation about making sure that community water systems understood the regulations; and what they found most of the time is that it only took some time to help systems understand what they needed to do and how they needed to do it. Ms. Thompkins replied that EPA can follow up as the agency is still piloting the toolkit and welcomes more partners.

Ms. Daniels had a couple of comments. She began by saying that she always appreciates the federal funding updates and notes the issue of funding gap -- ASDWA speaks about the gap in terms of needed funding both for states and for funds that states can pass through and use for technical assistance and the TMF (technical, managerial, financial) capacity programs. Ms. Daniels next commented on operator certification, noting that she was very excited to see the announcement about workforce development; that it's needed; and that a national focus will be incredibly helpful. She noted that they've done some work within Pennsylvania and mentioned that recently Governor Wolf advertised and announced grants to put apprenticeship programs together, one of which included an apprenticeship for water treatment. Ms. Daniels added that this provides some needed funding to get public-private partnerships up and running and noted that this work could help the water sector with workforce development.

Ms. Lewis raised a question regarding when the Lead and Copper Rule will be finalized. Ms. Thompkins deferred to Eric Burneson's presentation.

Looking to the conversation later, Dr. McLain said that EPA heard some great comments on the workforce initiative in the course of the exchange and is looking for input on the initiative and actions EPA can take, actions that NDWAC members are already taking that could be replicated elsewhere. She described how EPA is at a starting point and is looking to engage further.

Ms. Lewis confirmed with the DFO that there were no registrants for public comment and called a 15-minute break.

**Standards and Risk Management Division (SRMD) Regulatory Updates and Council Discussion:
Eric Burneson, SRMD Director, U.S. Environmental Protection Agency, and Carrie Lewis,
NDWAC Chair.**

Mr. Burneson remarked on a busy 2020 and explained that his presentation format would be the 1996 SDWA's six-step process for EPA to consider unregulated contaminants and make decisions on whether and how to regulate them; and to review and improve regulations. He reviewed the topics that he planned to cover and noted that the SDWA process is iterative and cyclical and that virtually all steps are on a prescribed recurring basis.

Mr. Burneson began with the Contaminant Candidate List (CCL), briefly describing the fourth CCL published in November 2016 and noting that putting a contaminant on the CCL does not impose a burden on any public water system; it prioritizes those contaminants for research and helps EPA identify contaminants for consideration for the Unregulated Contaminant Monitoring Rule (UCMR). He described results of EPA's request for public comments on CCL 5 and shared that EPA plans to publish the draft CCL in early 2021 for public comment. Once EPA considers comments, the agency will issue a final CCL, usually around a year following publication of the draft. He noted that EPA will seek input from the Science Advisory Board after publishing the CCL 5 for comment.

Mr. Burneson next described the UCMR as the next step in the SDWA process and noted that EPA is currently implementing the fourth cycle with states and public water systems to collect data on 30 unregulated contaminants. He explained that they are in the final year of monitoring and sample collection and that because lab analysis and reporting take time EPA will get data through the next calendar year. He noted the regular posting of updates to EPA's website and discussed the numbers of samples that have come in and systems that have provided data. He emphasized the public availability of the data; noted some UCMR 4 contaminants; and shared that a number of water systems are reporting results with manganese and with disinfection byproducts. He indicated that data collection is expected to wrap up in the next year and referred to preparations for UCMR 5 proposal including public meetings on analytical methods availability. He also touched on PFAS, noting that the 2019 PFAS Action Plan includes a commitment to monitor in the next UCMR for more PFAS at lower levels than previously possible. Mr. Burneson noted that six PFAS were in the third UCMR and emphasized that EPA is committed to considering PFAS for the next UCMR. He discussed how provisions under the AWIA and the National Defense Authorization Act impact the next UCMR cycle and noted that EPA has updated the previous analytical method for PFAS and published a new method that, combined, enable monitoring for 29 PFAS in drinking water. Mr. Burneson shared that the UCMR 5 proposal is in interagency review and that the proposal is expected to be signed soon and may be published this year or early next year.

Mr. Burneson turned to regulatory determinations and PFAS, noting that EPA committed in the PFAS Action Plan specifically to address PFOA and PFOS, which are on CCL 4. Mr. Burneson described the three findings that EPA has to make under the SDWA when the agency makes a determination to regulate a contaminant. He noted that last February EPA published proposed regulatory determinations for eight contaminants in the CCL 4 and made a preliminary determination to regulate PFOA and PFOS and preliminary determinations not to regulate 1,1-dichloroethane, acetochlor, methyl bromide (bromomethane), metolachlor, nitrobenzene, and

RDX. He noted that EPA has been evaluating over 11,600 public comments and expects to publish the final determinations early in the next calendar year.

Mr. Burneson next discussed rulemaking. He reviewed the history of EPA's consideration of perchlorate and the agency's July 2020 final action regarding regulation of perchlorate under the SDWA; and discussed the final lead-free rule, published in September 2020, that addresses the lead content of plumbing, fittings, and fixtures under the Reduction of Lead in Drinking Water Act of 2014. Mr. Burneson also discussed the proposed revisions to the Lead and Copper Rule (LCR) published in November 2019 for public comment and provided a summary of key aspects of the proposal. He stated that EPA received almost 80,000 comments and is in the final stages of final rule development with the action in interagency review. Mr. Burneson expected the revisions to be promulgated soon and indicated that EPA hopes to announce them if not by the end of the calendar year, then in the new year.

In closing Mr. Burneson talked about Six Year Review, noting that EPA completed its last Six Year Review in 2017 and is now preparing for the fourth round. Mr. Burneson noted the importance of gathering data on the frequency and occurrence of regulated contaminants from drinking water systems and described how EPA worked with states through the information collection request process, getting data from 45 states, the District of Columbia, and six tribal programs. That information combined with the information EPA is gathering on new health effects data will help the agency perform the next Six Year Review.

Ms. Daniels expressed appreciation for the updates and explained her assumption that early implementation will be adjusted according to when the Lead and Copper Rule revisions come out to give water systems and states ample time to prepare. She wondered about EPA's plans for training and other technical assistance outreach efforts to states and water suppliers and whether plans need to be in place for rollout when the rule comes out; and noted that states worked through ASDWA to provide recommendations to make sure that priority issues are covered in training sooner rather than later, especially if associated with early implementation. She concluded by asking for an update on where EPA is with training.

Mr. Burneson thanked Ms. Daniels for her questions and thanked Pennsylvania and ASDWA for commenting extensively on the proposed rule. He noted that the SDWA basically requires that national primary drinking water regulations become effective three years from rule promulgation in the Federal Register and so the LCR proposed revisions would adhere to that. He noted the timing under the proposal for submission of the inventory and lead service line replacement plan provisions and indicated that EPA plans among the top priorities following promulgation to work with states, utilities, and stakeholders to develop guidance. He noted that EPA will also be working to provide for information systems and reporting. He asked Ms. Daniels if there was another aspect that she was thinking of.

Ms. Daniels flagged data management systems and the ability to have that ready for both SDWIS and SDWIS-free states as an always important topic for states. She indicated that her question focused on training and technical assistance that will be needed for materials evaluation and lead service line inventories; and added that best practices for identifying lead service lines and anything new that has been gathered and can be shared with states and water suppliers would be

helpful. Ms. Daniels noted that the proposed rule included a lot of provisions about optimization and recertification of optimization and raised the always ongoing issues and challenges of how simultaneous compliance factors into optimization, emphasizing that as another area where states suggest that good training be provided. Mr. Burneson noted EPA guidance regarding optimization and said that EPA would work on updating and would work with state partners and others to improve, those trainings following promulgation. Dr. McLain confirmed that EPA appreciates the important role that training and early training will play in successful implementation of a revised LCR and will work closely with ASDWA.

Potential Revisions to Microbial and Disinfection Byproducts Rules and Council Discussion: Ryan Albert, Standards and Risk Reduction Branch (SRRB) Chief, U.S. Environmental Protection Agency, and Carrie Lewis, NDWAC Chair.

Mr. Albert explained that he would talk about EPA's public engagement activities for potential revisions to the Microbial and Disinfection Byproduct (MDBP) rules; and provide background, including on some decisions made in the Six Year Review 3 process and a few highlights from a virtual meeting held on October 14th and 15th. He described EPA's plan to hold public engagement meetings and indicated that EPA got useful feedback from the October meeting. He also noted that EPA has opened a docket for the duration of the public engagement process to accept written comments. He explained that after the first public meeting in October EPA wanted to take a few months and digest what was heard and he indicated that the current plan is to have several additional meetings, starting in spring 2021, throughout spring and summer culminating toward the end of 2021; and discussed timeframes for the rulemaking process under the settlement agreement with Waterkeepers Alliance.

Mr Albert provided some background on MDBP contaminants and the goal of balancing risks. He noted some of the contaminants and rules that EPA is currently reconsidering; highlighted how the MDBP rules were developed over many years; and talked about considering potential improvement while maintaining public health protection provided by the rules. Mr. Albert described SDWA requirements for rule revision and noted that a determination to revise the regulation does not mean that EPA must finalize or propose to finalize the regulation; and mentioned factors for analysis including health effects, analytical and treatment feasibility, occurrence, benefits, cost, and other considerations under regulations and executive orders.

Mr. Albert noted that EPA completed the Six-Year Review 3 in January 2017 and described microbial and DBP-focused regulations that EPA determined to be candidates for revision. He discussed public comments that EPA received including comments related to additional pathogen risk, especially Legionella; holistic (e.g., source to tap) consideration of risk including distribution system water quality; and consideration of sources of contamination and impacts on source water quality. He discussed premise plumbing and consecutive systems and talked about consideration of overall risk from water at the tap, or in trying to protect against Legionella, as well as the interest in disinfectant residuals and states' requirements. He also noted that EPA received comments to consider more brominated disinfection byproducts or a broader range of haloacetic acids; and discussed comments that EPA received to consider distribution system requirements including for storage tanks. He noted comments to consider re-examining use of sanitary surveys or holistic use of water management or safety plans to reduce risk in non- or

semi-regulatory fashion. Mr. Albert said that EPA would use the comments to set more in-depth conversations and asked for NDWAC members' input on the highest priorities to consider in setting the next year's agendas. He closed by noting that EPA has a dedicated email box and website and welcomed formal comments with respect to meeting agendas and conversations; whether to propose a regulation; and what to do with the regulations.

Mr. Brady described challenges that his utility, which has a 130 mile long aqueduct, and others face with controlling nitrification when converting to chloramine and explained that their ability to maintain a chloramine residual has been compromised through time and seems to be degrading; and that monitoring data indicate that biofilm propagation might be influencing the nitrification rate. He discussed the importance of maintaining a chloramine residual in a drought and the challenge of avoiding having to shut down a water supply source during a drought. Mr. Brady said that 90 percent of the biology in a pipeline resides within biofilm. He described his utility's chloramination process, noting reduced oxidation rates and less disinfection byproduct formation than with free chlorine; and compared biofilm penetration and nitrification with chloramine versus free chlorine, noting that at a certain level his utility loses residual to biological activity. He explained that they started a monitoring program to try to figure out conditions under which biofilm becomes activated more prevalently in terms of nitrification, and it seems to be related to a number of factors, water quality being one of them--not just TOC but nutrients and water temperature. Mr. Brady asked for Mr. Albert's thoughts on the issue and whether it is being considered; and added that maybe chloramine is not the type of secondary disinfectant that we need, or maybe we need something similar that stabilizes or slows the oxidation reaction to penetrate biofilm.

Mr Albert noted EPA's awareness of nitrification issues and advantages, disadvantages, and complications of using chloramine. He noted that EPA is looking at various data sets and talked about the helpfulness of the story that Mr. Brady shared. Mr. Brady expressed appreciation as a regional water supplier and described his concerns with respect to retail systems and buildings which are idle. He discussed how flushing does not remove biofilm and the need when looking at disinfection byproduct control not to ignore the biology and the ramifications. Mr. Albert acknowledged the comment and noted that the larger organization has been engaging on some of these issues.

Mr. Borman commented that he likes the overall approach, noting that his is a regional system with roughly 150 miles of transmission lines and that they use free chlorine because that works for their system as opposed to chloramine. He added that he wants to make sure that EPA does not go to one-size-fits-all, noting that there are many simultaneous compliance issues for each system and that everybody's source water is different; and referenced the need to look at the big picture. He said that most compliance issues will be with small systems and that EPA needs to get data from the small and medium systems that have compliance issues. He expressed concern that revisions may lead to bigger problems for those systems and emphasized the need to get their perspectives. Mr. Albert indicated that EPA wants to hear from all systems including small and medium-size systems and discussed EPA's commitment to share information with all stakeholders. He indicated that EPA wants feedback and recognizes this is complex. He noted that EPA is taking the time to get broad stakeholder feedback and considers various viewpoints and situations to the extent able.

Ms. Daniels expressed appreciation for the stakeholder meeting summary, noting there is a lot to share and she looks forward to the process. She said that challenges surrounding biofilm will be a big part of the conversation and highlighted the challenge of looking at treatment efficacy related to opportunistic pathogens in biofilm, explaining that it changes the way you look at treatment efficacy and inactivation and that a lot of work will be needed on this. She also flagged, when talking about buildings, that it is not just about buildings that are water system customers but that many thousands of buildings are regulated as public water systems and that almost every non-community system is a building; and talked about looking at the issues and gaps relative to SDWA regulations, guidance, and O&M. Ms. Daniels also noted a need to address Legionella within ground water as well as surface water systems. Mr. Abert expressed appreciation to Ms. Daniels' for championing the discussion particularly for Legionella.

Ms. Swallow expressed support for consideration of distribution systems, consecutive systems, and premise plumbing; and said that this is where there is the greatest potential for improved public health protection.

Dr. Hill noted CDC's presentation at the October meeting of work on their first estimate of waterborne disease in the U.S. to be published in January 2021 in the Emerging Infectious Diseases journal and discussed biofilm pathogens as drivers of serious health care outcomes and health care costs for all water exposures, noting the estimate does not break out drinking water. Ms. Daniels asked if CDC could speak to any plans to add biofilm-associated pathogens in addition to Legionella to the reportable illness reporting system. Dr. Hill noted that there is tracking in clinical settings but did not know of any initiative or formal surveillance system in community settings, other than for Legionella, on a case reporting basis.

Dr. McLain explained how EPA is at the beginning of stakeholder engagement and is looking for every way to connect with stakeholders and those who have information.

**Input from Council Members: How Might the NDWAC Assist EPA Going Forward?
Carrie Lewis, NDWAC Chair.**

Dr. McLain opened the discussion at the request of Ms. Lewis to ask for early input from Council members in preparing for 2021.

Mr. Brady talked about states' annual operator certification reports, noting EPA's authority to withhold DWSRF funds and voicing appreciation for the connection between infrastructure and human resources development. He noted varying quality and accessibility and other differences among the reports and suggested that the existing authority and reporting capacity could be used to generate information, such as numbers of operators per system, in a consistent format that could be used for workforce planning and could assist water systems in calibrating their workforce needs. He noted the need for and difficulty of finding technicians in areas such as instrumentation and control, information technology and network communication, and maintenance, as well as small system needs for manager training and certification. Mr. Brady also flagged the topic of apprenticeship programs, for example working with utility employers and state regulators to migrate existing water operator certification programs towards a full-

fledged apprenticeship program and reemphasized the value of hands-on water system experience. He described needs for succession planning and expected retirements at his utility within the next two years; and noted that the water sector offers secure employment as demonstrated during the pandemic.

Mr. Tiberi described a previous EPA committee experience of his where two or three committee members would hold a regional public meeting to get feedback on rules that were coming out and suggested that might be a way to use the Council if meetings go back to being in person. He said that there had been in-depth conversation and good ideas came forward, some of which the council adopted.

Ms. Campbell-Ferrari suggested that the NDWAC meet more than once a year, observing that at one point the Council met twice a year and that it would be possible to do that without a significant impact on EPA's budget if one meeting was in person and one online. She thought that the presentations are a testament that EPA is incredibly busy and that the Council could have a greater impact if it met twice a year. She commented that the Council should also talk about affordability and access, especially given the impact that COVID has had on customer debt loads and drinking water facilities' ability to provide services. She also suggested that the Council should talk about financial capacity assessment and mentioned a Clean Water Act proposal and SDWA guidance that could be relevant.

Mr. Borman thought that with the workforce initiative it might be time to look at the capacity development requirements as a whole and whether they could be strengthened down the road. He noted financial effects of cyber security and other issues playing into utilities' liability insurance and bond ratings. He also expressed that MDBP should stay on the agenda; and emphasized that there are many good ideas around the workforce initiative.

Ms. Chischilly noted four things that she is working on with the National Tribal Water Council that tribes are looking at right now: access for tribal nations that don't have access to water, as a huge issue; work which ITEP is doing to build tribal professional capacity throughout Indian country; tribes' strong stand in asking for proper consultation on new or changed regulations or roll backs and other issues prior to things getting too far down the line; and funding that tribes receive. She noted that tribes are at the frontlines of COVID and many tribal nations are struggling to get clean water and have clean water come to them during this time, and so look at increasing funding for that.

Ms. Daniels voiced her willingness to participate in more frequent NDWAC meetings to assist EPA. She thought that the Lead and Copper Rule and the MDBP conversations, including distribution system issues, are already on the 2021 agenda and that PFAS has to continue to be in the conversation for states. She also flagged capacity development and workforce development as important; and added failing infrastructure, noting the funding gap and suggesting that as the Needs Survey generates more current data the outlook will not be very good. Ms. Daniels also thought it could be important to look at lab accreditation in the light of states' needs for good quality data for unregulated contaminants including PFAS; and at communication challenges around health advisories.

Mr. Proctor pointed out that as a lot of people have mentioned in various ways many if not most of the problems that utilities face with dealing with water quality as well as management issues to some degree can be addressed by some emerging technologies; but that many utilities are slow to adopt those technologies because of 1) not wanting to go down a path only to find out that it's not going to work; 2) financing; and 3) the expertise necessary to undertake a technological deployment and subsequent operation of it. He thought it would be worthwhile for the Council to have a conversation about what it could recommend to EPA in terms of better facilitating the adoption and deployment of emerging technologies, and suggested that the Council has a unique perspective on the challenges.

Dr. McLain provided final remarks, noting that EPA will need to do some prioritization and would follow up, including on possible implementation of the interest expressed in a second meeting.

Closing Remarks: Carrie Lewis, NDWAC Chair, and Jennifer McLain, Office of Ground Water and Drinking Water Director.

Dr. McLain individually thanked members who were leaving the Council for their service—Dr. Alley, Mr. Melton, Mr. Moore, Ms. Swallow, and Ms. Lewis—and recognized expertise and experience that they each had brought to the Council's work. Mr. Moore, Mr. Melton, and Dr. Alley also expressed appreciation. Ms. Lewis and Dr. McLain noted the conclusion of the meeting.

*National Drinking Water Advisory Council (NDWAC) Members and Liaisons
December 2, 2020*

National Drinking Water Advisory Council Members
Ms. Carrie M. Lewis, NDWAC Chair: General Manager, Portland (Maine) Water District
Dr. William Alley: Director of Science and Technology, National Ground Water Association
Mr. D. Scott Borman: General Manager, Benton/Washington Regional Public Water Authority
Mr. John Brady: Deputy Director, Operations & Engineering, Central Coast Water Authority
Ms. Alexandra Campbell-Ferrari: Co-Founder and Executive Director, The Center for Water Security and Cooperation
Ms. Ann Marie Chischilly: Executive Director, Institute for Tribal Environmental Professionals, Northern Arizona University
Ms. Lisa D. Daniels: Director, Bureau of Safe Drinking Water, Pennsylvania Department of Environmental Protection
Mr. Saeid Kasraei: Administrator, Maryland Water Supply Program, Maryland Department of the Environment
Mr. Wilmer Melton, III: Director of Public Works, City of Kannapolis
Mr. Randy A. Moore: President, Iowa American Water
Mr. James M. Proctor, II: Senior Vice President and General Counsel, McWane, Inc.
Ms. June Anne Swallow: Former Chief (retired), Office of Drinking Water Quality, Rhode Island Department of Health
Mr. Jeffrey D. Tiberi: Montana Association of Conservation Districts Member, Lewis and Clark County Outdoor Air Quality Advisory Committee
Mr. Macaroy “Mac” Underwood: Principal Consultant, Raftelis Financial Consultants, Inc.
Centers for Disease Control Liaisons
Dr. Arthur S. Chang: Chief Medical Officer, Division of Environmental Health Science and Practice, National Center for Environmental Health
Dr. Vincent Hill: Chief, Waterborne Disease Prevention Branch, Division of Foodborne, Waterborne and Environmental Disease, National Center for Emerging and Zoonotic Infectious Diseases