U.S. EPA National Drinking Water Advisory Council

December 14, 2023

Mr. Michael S. Regan
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Dear Administrator Regan:

On behalf of the National Drinking Water Advisory Council ("NDWAC" or "Council"), I am pleased to provide the Council's advice and recommendations to the U.S. Environmental Protection Agency on issues related to potential revisions of microbial and disinfection byproducts (MDBP) regulations. This responds to the EPA's charge provided to the Council in November 2021. In the charge, the EPA asked that the NDWAC strive to reach consensus, where possible, on range of key issues and topics related to MDBP rules. The EPA also recognized the complex nature of the subject matter to be discussed by the NDWAC and that the Council may not reach consensus on all issues. The EPA asked that where consensus cannot be reached, the NDWAC would present additional information to the agency on alternatives, including discussion of the potential pros and cons associated with the various alternative approaches.

In addition, to support the work of the Council, the EPA asked the NDWAC to form a working group to explore specific issues and identify potential MDBP rule revision options for the Council to consider in making recommendations to EPA. The working group included five members of the NDWAC and other members selected to bring the expertise, experience, and perspectives needed to provide balanced recommendations to the NDWAC on issues related to MDBP rule revisions. Two members of the EPA's National Environmental Justice Advisory Council, one of whom served along with the Chair of the NDWAC as a co-chair, participated on the working group. The Council would like to express its appreciation to everyone who served on the working group for their impressive dedication and efforts. The working group report (attached and described below) presented six key themes across its recommendations. These themes included:

1. The WG members recognize that EPA will undertake substantial additional analysis as part of the EPA rules revision evaluation, and the WG intends that their recommendations will provide focus and support to the EPA analysis as it will be more in-depth than that available to WG members during their deliberations.
2. The recommendations emphasize delivering equitable outcomes to all communities irrespective of community and Public Water System (PWS) (note, the definition of PWS includes, among a variety of other system characteristics, publicly owned and privately owned systems) capacity or underlying vulnerabilities. The WG members recognize there is a need for EPA to address water affordability and develop a specific plan of action (e.g., Congressional budget request) to provide targeted support for small, rural, EJ, disadvantaged and historically underserved communities to ensure that no community or household gets left behind.
3. WG members understand that new requirements can place pressure on the affordability of drinking water services (especially small, rural, and EJ, disadvantaged and historically underserved communities), and the recommendations call for a strong emphasis – consistent with the commitment to delivering equitable outcomes – on enhanced support to low-income customers. On the other hand, many small, rural, and EJ, disadvantaged and historically underserved communities cannot qualify for DWSRF funding unless upgrades are needed to comply with SDWA requirements; it is very difficult to secure funding to implement guidance or best practices.
4. The recommendations related to new requirements utilize a problem-based approach (i.e., in contrast to a one-size-fits-all regulatory requirement, the recommendations seek to isolate problem contexts where new requirements can be applied in a targeted and tailored manner) and seek to establish positive incentives for identifying and addressing problems proactively (e.g., tying the provision of TMF resources to PWS impacted by new requirements).
5. The recommendations are assembled to work together to advance equitable public health improvement, even as individual recommendations, in and of themselves, can act to advance public health and improved PWS performance.
6. The recommendations span from source water to tap and invoke SDWA changes, other federal authorities (e.g., Toxic Substances Control Act, Clean Water Act, Clean Air Act), and a mix of regulatory and non-regulatory interventions.

The NDWAC is enclosing the working group's report which contains important details as foundational information for the EPA on the Council's deliberations.

The NDWAC met on November 28, 29, and 30, 2023, and considered the thirteen recommendations discussed in the working group's report. Deliberations during the meeting resulted in 11 of 13 recommendations on which the Council reached consensus, provided below. The NDWAC is also providing information to the EPA that reflects the Council's discussions on recommendations where the Council did not reach consensus, included below.

Recommendation 1: Disinfectant Residual - Address the potential for no or low disinfectant residual in surface water Public Water System (PWS) distribution systems (DS) by addressing

all of the following:

Part 1: Adopt a national positive numeric minimum disinfectant residual requirement. This recommendation would change the current "detectable" disinfectant residual requirement to a numeric minimum requirement and cover the same drinking water systems.

The NDWAC recommends that, in order to balance the risk-risk tradeoff and limit the formation of DBPs, EPA should consider the lowest disinfectant residual level that can achieve inactivation of Legionella and other pathogens of concern while also ensuring a true detectable residual (taking analytical method and instrumentation limitations into consideration).

The expert input suggests EPA should raise the national minimum disinfectant residual requirement from the current value of "detectable" and include a range for consideration of setting a minimum specific value of up to 0.5 mg/L for free chlorine and 0.7 mg/L for total chlorine for chloraminating systems.

The NDWAC believes that a problem-oriented approach to ensuring disinfectant residual is maintained can be supported through systems selecting from an EPA-developed toolbox[1] that PWSs could use to restore and maintain disinfectant residuals at the required levels (the toolbox would have information about techniques like flushing, find and fix actions for a specific sampling location, water age management, pressure management, and backflow prevention to help maintain residuals).

Alternative perspective: Current Surface Water Treatment Rules require that a disinfection residual concentration in the distribution system cannot be undetectable in more than five percent of samples per month for any two consecutive months the system serves water. Increasing that requirement to a proscribed numeric level will create a wash of DBP violations in currently operating water systems that have found the delicate balance between distribution residuals and DBPs. Because chlorine residual declines in the distribution system any recommended minimum detectable limit range that includes a level above the current required entry point residual for free or combined disinfection residual of .2 mg/L won't be achievable for systems maintaining an entry point residual at the minimum .2 mg/L to maintain compliance with disinfection byproduct MCLs. The recommendation would be to keep the current standard of detectable.

Additional discussion: Recommendation 1 is intended to work in concert with Recommendation 4 to avoid increasing DBP formation.

Part 2: Establish and require adoption of a disinfectant residual sampling and monitoring plan that will provide an accurate understanding of areas within the distribution system that have low or no disinfectant residual. Consider the following three options as part of establishing the new sampling and monitoring plan. The NDWAC views Option 1 as a baseline modification to

[1] https://www.epa.gov/dwreginfo/drinking-water-distribution-system-tools-and-resources.

current disinfectant residual monitoring requirements, while Options 2 and 3 represent opportunities to build on Option 1 to improve public health protections, create a more integrated and comprehensive picture of distribution system water quality, and potentially streamline monitoring requirements overall.

- Option 1: Modify disinfectant residual sampling site selection criteria based on additional criteria set during the rule revision process.
- Option 2: Design multi-parameter monitoring and assessment plan to overlay RTCR, DBP, and other DS sampling provisions (essentially any new monitoring requirements coming out of the MDBP rules revisions) to provide a more complete picture of water quality conditions in the DS.
- Option 3: Establish an Integrated Monitoring Plan that brings into one plan all SDWA required DS sampling and monitoring requirements (i.e., residuals, total coliforms/E. coli, DBPs, lead and copper, state-required sampling, other related water quality parameters).

Part 3: Establish a revised disinfectant residual compliance basis that reduces the potential for areas of distribution system to experience low or no disinfectant residual on a repeat basis. The recommended approach is to allow no less than 95% of samples meeting a numeric minimum each month and a prohibition on site-specific repeat failure to maintain the numeric minimum.

Recommendation 2: Premise Plumbing - EPA should advance a national building water quality improvement initiative based on an enhanced partnership among federal agencies and state SDWA oversight agencies.

Part 1: Identify opportunities to build on the existing partnership relationship between ASDWA, CDC, and EPA with a goal of establishing an effective framework for creating and implementing an "all of government," regulatory or incentivized program applying to buildings for improving the safety of premise plumbing with respect to opportunistic pathogens. Include in this initiative Water Management Program requirements for all federally owned/operated buildings not already covered by such requirements.

Part 2: Conduct data gathering and analysis that will provide the information needed to achieve the outcome sought, including activities such as understanding gaps in current building water improvement promotion efforts, barriers to uptake of Water Management Programs (WMP), and establishing incentives for WMP uptake.

Part 3: Based on work completed in the data gathering and analysis stage, consider expanding the initial partnership to include additional members, for example, building and institution-related national associations (e.g., American Hospital Association), building service providers (e.g., water quality management companies, insurers), state and local public health agencies, and unions involved in operating and maintaining building plumbing systems.

Part 4: Build out a program that focuses on providing appropriate requirements and materials for different types of buildings with differing relative risks.

Part 5: Develop and implement a Legionella public awareness campaign targeting smaller-scale building owner/renters (e.g., single family residences) to elevate improved building water quality management practices.

Recommendation 3: DBPs of Emerging Concern - Address data and analysis gaps associated with DBPs of emerging concern.

The NDWAC believes the potential for public health impacts from regulated and unregulated DBPs merit further research, and the NDWAC acknowledges there are DBP concerns that require follow-up. To advance further consideration of new DBP regulatory interventions, the NDWAC recommends that EPA and the research community address data and analysis gaps on DBPs of emerging concern by undertaking the following: Generate nationally representative occurrence, health effects, and treatment data on regulated and unregulated DBPs to better characterize national occurrence/exposure and risk baselines and to inform risk management strategies.

Recommendation 4: Multi-Benefit Precursor Control - Establish a PWS source water evaluation screening requirement and, under defined conditions, provide additional mandatory treatment to reduce DBP formation and disinfectant demand.

Part 1: Evaluate options for a source water vulnerability screening requirement to identify those systems with a higher risk of DBP formation. As part of considering options:

1. Assess and prepare a rationale for the inclusion in the source water screening requirement all Subpart H PWS and groundwater systems that disinfect, taking into account that distinct differences between surface water and true groundwater systems will likely lead to different approaches between the two. This requirement is not intended to apply to consecutive water systems unless the consecutive system has its own source(s) of supply in addition to receiving finished water from one or more wholesale systems.
2. Examine a range of data sources to be part of the vulnerability assessment screening process. Options to consider include: PWS history of SWTR or D/DBPR violations or challenging local source water quality conditions (e.g., 303(d) impaired waters, upstream fracking operations, coal fired power plant discharges, saltwater intrusion, or relatively high source water cyanobacteria, nitrogen, and/or phosphorus).
3. Examine available source water monitoring data for bromide and TOC (e.g., previously generated UCMR-related TOC and bromide monitoring data) and the contribution of wastewater effluent (or nonpoint source) discharge to the utility's drinking water source[2] for the role they can play in the screening requirement.
4. Examine under what operational or other conditions (e.g., advanced treatment is already

[2] Note, wastewater effluent is also addressed under Recommendations 3 and 8. Additional data and analysis is suggested as needed for wastewater effluent screening and characterization under Recommendation 3, and focused efforts to control problematic wastewater discharge are suggested under Recommendation 8.

being utilized, demonstrated high performance of system relative to microbial and DBP control, high quality sources) a PWS can opt out of the vulnerability screening requirement. It is recommended that EPA establish a timeframe for re-evaluation to ensure the operational or other conditions have not changed (e.g., every three to five years).

Part 2: Evaluate options for an enhanced precursor control treatment technique requirement in response to elevated precursor conditions characterized through the vulnerability screening. As part of considering options:

1. Examine the role additional monitoring can (would need to) play for higher vulnerability systems to create the baseline needed for application of the treatment technique requirement.
2. Examine a range of approaches to establish the method(s) higher vulnerability systems will use to determine their performance requirement.
3. Examine and seek to include a range of options for how covered systems must operate to achieve the performance levels indicated by the treatment technique performance requirement.

Alternative perspective: Mandating enhanced precursor control treatment requirements for vulnerable systems will create a huge financial and operational burden for water systems - with no guarantee of success. There could be more affordable avenues to attain compliance – and EPA shouldn't mandate the most expensive option. Most systems have already considered precursor control if they are struggling with compliance with the DBP rule. Any recommendation moving forward should be assistance based and not have a regulatory element.

Additional discussion: Recommendation 4 provides a multi-layered approach to public health protection that will allow for flexibility and variability in solving DBP issues before mandating changes in treatment processes.

Recommendation 5: Finished Water Storage Tanks - Address finished water storage tank vulnerabilities by establishing a national inspection and cleaning as needed requirement; supported by a review and update as needed of current storage tank operations and maintenance guidance.

Part 1: Institute a national finished water storage tank inspection and cleaning as needed requirement to fill the current gap left by limited state-level regulatory efforts for storage tanks. Factors that could indicate a need to clean storage tanks include continual loss of disinfectant residuals and accumulated material leaving tanks. In support of this requirement, the NDWAC anticipates there also will be additional training and tank inspection protocols needed to address current challenges with sanitarian expertise related to structural integrity of facilities and limitations on confined-space entry and climbing of tanks.

Part 2: Review of current finished water storage tank guidance to identify gaps and update

guidance accordingly, as well as provide for additional guidance in support of implementing a national inspection and cleaning as needed requirement.

Recommendation 6: Chloramination - Improve chloramination practices to promote control of microbial contamination and DBP formation potential and improve overall consistency of water quality.

Part 1: Develop national comprehensive chloramine application guidance to assist primacy agencies and chloraminating systems on properly managing chloramine disinfection, by considering the related information available from relevant existing documents and new literature.

Part 2: Develop a national comprehensive temporary chlorine conversion guidance to assist primacy agencies and chloraminating systems to minimize negative impacts on water quality in DS during conversion periods.

Part 3: Monitor regulated DBPs before, during, and after chlorine conversion. In the context of temporary chlorine conversion, to improve attentiveness to the potential for high, acute exposure to DBPs, as well as recognize the potential impact on long-term exposure, require systems conducting extended conversion (e.g., longer than one week or engaged in multiple, shorter-duration conversions throughout the year) to monitor regulated DBPs before, during, and immediately after the conversion and include the monitoring results, on a time-weighted average for the quarter, in their compliance calculation of Locational Running Annual Averages.

Part 4: Require a Nitrification Control Plan (NCP) for all chloraminating systems that incorporates practices described in guidance resulting from Parts 1 and 2. Primacy agencies, consistent with current state chloramination permitting or plan review and approval procedures, would approve the NCP for each newly chloraminating system. Existing chloraminating systems would submit an NCP to the state upon a schedule to be determined. EPA must couple this requirement with new funding for PWS and Primacy Agencies, provision of enhanced and appropriate TMF capacity, and a water affordability program included in Recommendations 9, 10, and 11 to ensure all systems will have the resources to install and safely maintain appropriate treatment to reduce MDBP health risks and would not need to limit the use of appropriate technology based on water affordability constraints.

Recommendation 7: Consecutive Systems - Improve water quality and regulatory compliance rates for consecutive systems.

Part 1: Develop a problem-based consultative requirement between wholesale and consecutive systems.

1. For all PWSs that provide water to a consecutive system, require disinfectant residual sampling at the active points of connections of the wholesale and consecutive systems or nearest water quality sampling point.

2. Examine options available under the SDWA to require a joint, root-cause analysis consultation among the wholesale system, consecutive system, and state regulators in contexts where the consecutive system experiences violations of health-based standards related to DBPs or disinfectant residual.
3. Examine options available under the SDWA for requiring DBP and disinfectant residual monitoring by the wholesale system at the active points of connection to the consecutive system as part of the response to health-based standards violations.
4. Specifically target TMF capacity support for wholesale and consecutive systems related to the required root-cause analysis consultation and establish this support, as well as DWSRF funding, as a priority to address changes needed to return to compliance.

Part 2: Prepare guidance on recommendations for consecutive system model contracts and improved communications between wholesalers and consecutive systems.

Recommendation 8: Source Control - Leverage non-SDWA authorities to:

Part 1: Prevent the introduction of potential drinking water contaminants into the water cycle. EPA should develop a policy requiring chemical or other constituent screening processes (e.g., Toxic Substances Control Act Significant New Use Review) to evaluate proactively the potential for impacts on public health risks from drinking water, on drinking water treatment, and on drinking water quality management.

Part 2: Evaluate the discharge into all source waters of the primary constituents that contribute to the formation of DBPs, growth potential of opportunistic pathogens, or introduction of frank pathogens. EPA should identify and prioritize anthropogenic drinking water constituents (and related predominant sources) that contribute to the formation of DBPs or to the growth potential of opportunistic pathogens and introduction of frank pathogens. These high priority constituents/sources of contaminants would be slated for action if appropriate to control their entry into drinking water sources under relevant environmental and public health authorities (e.g., Clean Water Act (CWA), Clean Air Act (CAA), Resource Conservation and Recovery Act (RCRA) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)).

Recommendation 9: Environmental Justice (EJ) Improvement Opportunities - Conduct analyses to characterize the current gap in MDBP rule implementation and affordability pressures faced by public water systems serving EJ, disadvantaged and historically underserved communities. Provide strategies for ensuring this gap is filled and to work toward more equitable implementation of the MDBP rules across demographic groups. Ensure that new requirements can be implemented consistently, with sufficient additional resources provided to equitably receive the benefits anticipated to result from the rule revisions.

Part 1: To ensure all communities equitably receive the benefits intended by the MDBP rule revisions, all of EPA's analyses to support rule revisions should identify and account for existing and potential disparate impacts to EJ, disadvantaged and historically underserved communities.

Part 2: To ensure the most overburdened communities and water systems are adequately evaluated for compliance and provided resources for improved water quality, structure MDBP rule revisions to enable and incentivize problem solving and proactive improvement. Across the NDWAC's MDBP rule revision recommendations, it is important to establish requirements within a framework that rewards problem identification with ready and timely access to the needed resources and while providing affordability programs for those that struggle to afford their water bills.

Part 3: To ensure all residents have access to timely information for protecting their families and communities, improve community access to PWS performance information.

- Intervention 1: Improve Public Notification of PWS Compliance and Performance Information to Consumers.
- Intervention 2: Enhance PWS Data Management and Communications Capacity
- Intervention 3: Improve Systemic SDWA Data Access.
  In addition to the six items listed under Intervention 3, the NDWAC recommends: EPA should provide the necessary funding and resources and complete the necessary upgrades to the federal reporting system, Safe Drinking Water Information System (SDWIS), as soon as possible to improve the availability and transparency of data to consumers, and allow primacy agencies to fully implement rules to include tracking operational and compliance data and enforcing new requirements.

Recommendation 10: Public Water System (PWS) Technical, Managerial, and Financial (TMF) Capacity - Provide and align additional TMF capacity for small, rural, EJ, disadvantaged and historically underserved communities consistent with new demands placed on PWS by MDBP rules revision.

Part 1: Target additional technical and financial assistance to small, rural, EJ, disadvantaged and historically underserved communities (not limited to systems below 10K people served) to support the transition to and maintain compliance with existing and new MDBP rule revisions.

Part 2: Evaluate and improve operator certification with an emphasis on DS management to maintain disinfectant residuals through DS optimization, including storage tank operations and chloramination practice, and to reduce risks to public health from microbials and DBP formation.

Part 3: EPA should support, prioritize, and advocate for a permanent Low-Income Household Water Assistance, or similar, Program (LIHWAP).

Part 4: Establish strong incentives for PWS to require training for their Board members.

Recommendation 11: Primacy Agency Capacity - Address SDWA Primacy Agency capacity needs associated with the new demands anticipated from MDBP rule revisions.

Part 1: Identify and direct ample capacity resources for primacy agencies to implement new MDBP rule requirements.

Part 2: Adjust sanitary survey implementation to reflect MDBP rule revisions.

Recommendation 12: MDBP Overall Data and Analysis Gaps - Address gaps in data and analysis related to microbial and DBP contaminants.

The NDWAC has identified areas within the MDBP topics referred for consideration that could benefit from additional research to address data and analysis gaps. The NDWAC recommends that EPA further develop information related to the areas listed below to inform future consideration of MDBP revisions.

Part 1: Source Water Data and Analysis Gaps

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Part 2: Treatment Data and Analysis Gaps.

Part 3: Distribution System Data and Analysis Gaps.

Part 4: Premise Plumbing Data and Analysis Gaps.

Part 5: Enabling Environment Data and Analysis Gaps.

Recommendation 13: Ground Water Under the Direct Influence of Surface Water (GWUDI) – EPA should revisit the definition, determination methods, and guidance for GWUDI to ascertain what changes should be made to improve the protection of public health.

Part 1: Review and revise the definition of GWUDI. Reviewing and revising the definition of GWUDI to add total aerobic spores or other indicators into the definition would provide additional example methodology to make a determination.

Part 2: Update the recommended determination method and EPA guidance for making GWUDI determinations. A goal is to make the determination simpler and more accurate.

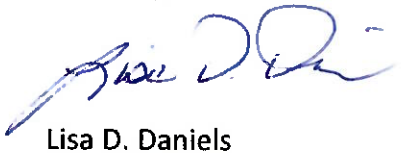
Part 3: Require primacy agencies to periodically re-evaluate GWUDI determinations after events that have potential impacts to subsurface filtration of the underground sources, or monitoring data that suggests source water contamination.

The NDWAC notes that where there are any differences between the Council's advice and recommendations as provided in this letter and the working group's report, the Council's advice and recommendations supersede the working group's report.

On behalf of the members of the National Drinking Water Advisory Council, thank you for this

opportunity to advise and provide these results of our deliberations with you. The Council looks forward to providing further assistance to the EPA on important Safe Drinking Water Act matters.

Sincerely,



Lisa D. Daniels
Chair, National Drinking Water Advisory Council

ENCLOSURE:

1. Report of the Microbial and Disinfection Byproducts Rule Revisions Working Group to the National Drinking Water Advisory Council, November 2023

cc: Radhika Fox, Assistant Administrator for Water
Jennifer L. McLain, Director, Office of Ground Water and Drinking Water
Yu-Ting Guilaran, Deputy Director, Office of Ground Water and Drinking Water