



April 20, 2021

Ms. Ashley Greene  
Standards and Risk Management Division  
Office of Ground Water and Drinking Water  
Environmental Protection Agency  
Mail Code: 4607M  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

**Subject: Comments on Potential Revisions of the Microbial and Disinfection Byproduct (MDBP) Rules (Docket ID: EPA-HQ-OW-2020-0486)**

Dear Ms. Greene:

The U.S. Environmental Protection Agency's (EPA) third Six-Year Review identified eight national primary drinking water regulations (NPDWRs) as candidates for potential regulatory revision, including: Chlorite, *Cryptosporidium*, Haloacetic acids, Heterotrophic bacteria, *Legionella*, Total Trihalomethanes, and Viruses. These eight NPDWRs are included in the following Microbial and Disinfection Byproduct (MDBP) rules: Stage 1 and Stage 2 Disinfectants and Disinfection Byproducts Rules (DBPR), Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule, and Long-Term 1 and Long-Term 2 Enhanced Surface Water Treatment Rules.

According to EPA's 2019 *Stage 2 Disinfectants and Disinfection Byproducts Rule (DBPR) and Consecutive System In-Depth Analysis*, violations of the Stage 2 DBPR accounted for approximately 30 percent of all violations during 2017 and 2018. In 2017, over 2 percent of the roughly 50,000 community water systems (CWSs) in the U.S. had a Stage 2 DBPR health-based violation. Not only are these health-based violations the most common violation in terms of both the number of violations and systems in violation, but these violations impacted the second largest population with health-based violations.

The Association of State Drinking Water Administrators (ASDWA) and its members support EPA's update of the MDBP rules. The last set of negotiations for these rules concluded in 2000, and the state of the science for pathogens and DBPs has evolved significantly over the past two decades. These rules continue to pose significant compliance challenges for water systems and are resource-intensive rules for states to implement. These rules also regulate several commonly occurring acute and chronic contaminants and therefore represent a large opportunity to continue to improve public health protection. ASDWA members and staff participated in the October 2020 MDBP Public Meeting<sup>1</sup> and appreciate the opportunity to provide additional comments.

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<sup>1</sup> 85 FR 61680

ASDWA's comments are organized into seven topics:

1. Increasing compliance with current rules and preparing water systems for future rule updates
2. Addressing consecutive systems
3. Improving management of DBP precursors
4. Considering a numeric disinfectant residual requirement and addressing *Legionella*
5. Developing health effects data and analytical methods for currently unregulated DBPs
6. Evaluating and increasing operator capacity for better distribution system management
7. Input on the rule development process

ASDWA gathered data for several of these topics in a 2020 survey of its members on drinking water distribution system issues<sup>2</sup>. ASDWA looks forward to working with EPA throughout the rule development process and expects there will be several more opportunities for the states to engage with EPA. The following comments are only initial recommendations for EPA to consider as the rule development process begins and do not capture the full breadth of state opinion, nor do these comments necessarily represent the specific experiences and concerns of individual states. We encourage EPA to consider individual state comments, in addition to ASDWA's comments, to gain further perspective.

ASDWA appreciates the opportunity to provide this input on the potential MDBP rule revisions and looks forward to continuing the dialogue with EPA. If you have any questions regarding these comments please contact Wendi Wilkes at 703.812.2127 or [wwilkes@asdwa.org](mailto:wwilkes@asdwa.org).

Sincerely,



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Executive Director  
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Cc: Jennifer McClain, OGWDW  
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<sup>2</sup> A summary of this survey and its findings are available here: <https://www.asdwa.org/wp-content/uploads/2020/09/ASDWA-Distribution-System-Survey-White-Paper-2020.pdf>

## Increasing compliance with current rules and preparing water systems for future rule updates

One way to increase current compliance and prepare water systems for future rules is to continue to support and expand the Area-Wide Optimization Program (AWOP). AWOP is a voluntary multi-state effort in which states work together to develop and implement programs to support public water systems with the optimization of their treatment processes and distribution systems. The program is designed to assist water systems with optimizing their physical and organizational infrastructures without incurring capital expenses. AWOP participation not only enhances relationships between states and water systems, but research demonstrates increased public health protection by achieving optimized performance goals.

The Kentucky Energy and Environment Cabinet (KEEC) has struggled with MDBP compliance due to high DBP formation in water systems across the state from past consolidation of community water systems. In 2015, KEEC began using Distribution System Optimization Training through the AWOP program to target trainings to linked wholesale and consecutive system “families” to encourage treatment plant and distribution system optimization, especially where the parent system was in compliance while the consecutive systems were in violation for DBPs. KEEC also conducted two performance-based trainings focused on DBP control at water plants and conducted five modular distribution system optimization trainings focused on water age, tank operation and flushing programs. These trainings, conducted through the AWOP program, in conjunction with state-led technical assistance drove an 84% reduction in DBP violations across the state from 2016 to 2019. Kentucky is just one example of the success AWOP can achieve when given the resources and a mission.

AWOP is currently active in 28 states to varying degrees; AWOP is a time and resource intensive program and could use additional support. The program is funded primarily through state funds with support from EPA through contracted services. Increased funding through EPA for contract services and increased funding for state water programs from Congress could help strengthen the AWOP program in existing states, expand the scope of AWOP as needed, and increase the number of states participating in the program, ultimately reducing the number of violations and improving public health protection.

One reason AWOP is successful is that the program recognizes the link between unoptimized water plants and increased risk of DBPs, exacerbated by old and failing drinking water infrastructure. The U.S. is clearly battling an aging infrastructure problem. The most recent American Society of Civil Engineers’ Infrastructure Report Card graded U.S. water systems with a “C-,” to indicate the poor state of water infrastructure.<sup>3</sup> The public lives with the impact of failing infrastructure through increased water main breaks, with an estimated 240,000 water main breaks occurring each year, and loss of nearly six billion gallons of treated drinking water a day due to leaking pipes. More importantly, failing distribution systems present a public health risk. Broken and deteriorated water pipes give contaminants the opportunity to enter the water system, reducing the integrity of the distribution system and increasing the risk of microbial contamination and DBP formation. Improving outdated infrastructure through asset management and pipe condition assessments and increasing federal investment in drinking water infrastructure will have a positive impact on MDBP rule compliance.

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<sup>3</sup> “Drinking Water.” ASCE’s 2021 Infrastructure Report Card, March 25, 2021.  
<https://infrastructurereportcard.org/cat-item/drinking-water/>.

Violations can be reduced by emphasizing the importance of compliance, both at the treatment plant and throughout the distribution system and educating operators and water system staff about potential points of failure throughout the water system. The MDBP rules require compliance at both treated-water entry points and throughout the distribution system. Additionally, for DBPs, the potential for non-compliance can increase in the distribution system. DBPs can increase throughout the system and small issues at the source or within treatment processes can lead to more significant issues at the tap. And for microbial contaminants, maintaining water quality throughout the distribution system plays a critical role in ensuring safe water at the entry point to premise plumbing systems and at the tap.

### Addressing consecutive systems

Per the [ASDWA 2020 Distribution System Survey](#), consecutive systems (with and without secondary treatment) are a top issue in many states:

*When asked what the top issues are in the distribution system that their state is facing (that are not currently regulated), the most common response was issues with consecutive systems and private systems. Ten states listed these two as their top issues, citing the coordination of responsibility for delivered water quality between wholesale and purchased water systems, the lack of consecutive system regulations for monitoring and maintenance, and the need for clarity or expansion in the definition of a PWS to include large distribution systems that are not currently regulated.*

Recognizing that a consecutive system's water quality can best be guaranteed by regular monitoring and sampling to identify problems in water supplied by the wholesaler as well as distribution system deficiencies in the consecutive system, some states require additional monitoring for consecutive systems.

*At least 30 states (77% of respondents) do not require monitoring at interconnections for consecutive systems, while at least nine states do require such monitoring. Of these nine states, most require monitoring for DBPs (HAA5 and TTHMs). Other monitoring parameters include acute contaminants, nitrate, nitrite, fluoride, iron, lead and copper, asbestos, alkalinity, hardness, disinfectant residual, and pH. At least one state that does not require monitoring at the interconnection but strongly recommends it.*

States have identified the need for coordination between wholesale and consecutive systems to solve DBP compliance issues for the purchase water systems and ASDWA recommends EPA explore potential requirements to drive such action in future stakeholder engagements.

### Improving management of DBP precursors

ASDWA recommends EPA consider reevaluating the total organic carbon (TOC) removal requirement and alternate compliance criteria through the stakeholder process. The thresholds set by the Stage 1 and 2 DBPRs for TOC were based on the best available data at the time (over two decades ago) and should be reevaluated. An improved understanding is needed on the actual reduction in DBPs from the TOC removal requirement, as removal of TOC may not necessarily mean a water system has removed the reactive organic compounds. While TOC monitoring can be a gauge for DBP creation, there are many instances where drinking water systems meet TOC goals (averaging < 1.7 mg/l TOC) but have DBP issues; this is especially true for consecutive systems.

Because TOC may not be the perfect surrogate for reactive organic materials in the water, some states have utilized alternative compliance criteria for water systems that have low TOC levels in their source water. Iowa, for example, allows the alternative compliance criteria of specific ultraviolet absorption (SUVA) to determine DBP formation potential. In Texas, for some systems TOC removal often has minimal impact on DBP formation because many Texas source waters contain bromide. The typical DBP reduction strategies (TOC removal, flushing, and tank management) simply don't work for these systems. Pennsylvania and Kentucky have similar situations. TOC has some benefit but is certainly not a cure-all and in Texas, systems use jar tests with UV254 to determine which treatment and chemical combination would produce the best finished water quality. ASDWA encourages EPA to research and leverage additional alternative compliance methods for TOC to ensure flexibility in any regulatory update so that source water is appropriately evaluated.

Improving the management of DBP precursors and having additional regulatory options that could be tailored to source water quality could be one method to better manage DBP formation. A full suite of potential regulatory options should be explored, including adding Bromide and other chemicals to the contaminants regulated on discharge permits nationally. In Kentucky, for example, coal mine discharges into a river that crosses state boundaries has adversely impacted drinking water systems. The discharges have caused an increase in the brominated species of DBPs which cannot be removed through conventional treatment. While Bromide itself is not a danger at levels below 1.0 mg/l, it can create brominated species of disinfection byproducts and generate a financial burden, with the removal process on downstream drinking water systems. EPA should consider non-SDWA regulatory options for improving source water quality.

#### Considering a numeric disinfectant residual requirement and addressing *Legionella*

At this time, ASDWA does not have a recommendation for a specific numeric disinfectant residual requirement as a part of a rule update but does propose this as a topic to be explored and discussed in future stakeholder engagement events. However, ASDWA recognizes the existing rule is difficult to implement because there is no definition of detectable residual provided by EPA. A numeric value for a minimum disinfectant residual for water systems that are currently required to disinfect is needed for clarity and standardization. Where that value should be set, should be explored through academic research and stakeholder engagement.

State drinking water programs have taken varied approaches to a numeric disinfectant residual and have useful perspectives and experiences to share. For example, Iowa requires any system using chlorine to maintain a disinfectant residual throughout the distribution system of 0.3 milligrams per liter (mg/L) for free chlorine or 1.5 mg/L for total chlorine, including consecutive systems. Despite these requirements, Iowa, an active AWOP state, has been able to maintain low DBP violations by working with water systems on reducing water age, eliminating organic carbon through treatment including use of chlorine dioxide, mixing of water in storage tanks, and using booster chlorination treatment facilities in the distribution system. Each state has their own approach to disinfection residual requirements, with many prioritizing acute microbiological problems over chronic DBP violations. For example, in response to three deaths in the state caused by *Naegleria fowleri*, Louisiana instituted a disinfection rule requiring public water systems to always maintain a minimum disinfectant residual level of 0.5 mg/L free or total chlorine at all points in the distribution system and in finished water storage facilities. ASDWA recommends that EPA recognize disinfectant residuals as a critical issue for the Agency to consider and

explore with stakeholders and offers technical assistance on the optimal approach for collecting the data and information from states on the varying existing approaches. Specifically, EPA should work hard to learn lessons from state experiences in implementing their regulatory approaches and state methods for monitoring, compliance tracking, issuing violations with corresponding public notice, rule enforcement, and resource implications for these rules.

EPA's [Comprehensive Surface Water Treatment Rules Quick Reference Guide: Systems Using Conventional or Direct Filtration](#) includes the statement that in the distribution system, "Residual disinfectant concentration cannot be undetectable in greater than 5% of samples in a month, for any 2 consecutive months. Heterotrophic plate count (HPC)  $\leq$  500 /mL is deemed to have detectable residual disinfectant." This is consistent with 40 CFR §141.72(b)(3)(i). The preamble to the Surface Water Treatment Rule includes the following discussion related to HPC:

*In other words, if microbial populations are low, the lack of a disinfectant residual is not a concern. Therefore, in the final rule, sites with HPC populations of 500/ml or less are considered equivalent to sites with detectable disinfectant residuals for purposes of determining compliance. EPA believes the 500/mL HPC limit is generally feasible for most well-operated systems with well-maintained distribution systems and that water below this limit is unlikely to be subject to localized contamination or significant microbial growth.<sup>4</sup>*

States have not observed a clear basis for EPA's decision to deem a HPC  $\leq$  500 /mL as compliant with having a detectable residual disinfectant. During the MDBP review, it is recommended that an evaluation be made of the decision that was made to include in SWTR this provision regarding HPC. More than thirty years have passed since that decision was made and it should be possible now to make a more informed evaluation of the use of HPC as an operational tool for measuring microbial breakthrough and detecting loss of water main integrity.

*Legionella* continues to present a microbial concern for states. Although the key to preventing Legionnaires' disease is ensuring building owners and managers maintain building water systems to reduce the risk of *Legionella* growth and spread, water systems play a crucial role in delivering safe and high-quality water to these buildings. EPA should engage with different stakeholders, including hospitals and other healthcare facilities and building manager associations to assist in developing ways for these stakeholders and public water supplies to coordinate their efforts and carry out their respective responsibilities and to promote adequate building water quality management. EPA should continue to explore what action under the MDBP rules could be taken to ensure high quality water is delivered to buildings throughout the distribution system and should work with water systems and states to consider approaches that are not unreasonably resource intensive. EPA should also consider the risk communication concerns that could arise with routine testing and periodically finding *Legionella* in water distribution systems. Additionally, some states have moved forward more quickly in developing regulatory approaches to addressing *Legionella*. EPA should engage directly with these states to gain a

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<sup>4</sup> National Archives And Records Administration. *Federal Register: 54 Fed. Reg. 27321*. Thursday, 1989. Periodical. <https://www.loc.gov/item/fr054124/>. Page 27495.

deep understanding of these approaches, the full process of how they are implemented, resource and cost implications, and their successes and challenges.

#### Developing health effects data and analytical methods for currently unregulated DBPs

According to EPA research, “Since 1976, more than 600 DBPs have been reported, but only a few of them have been quantitatively assessed for their occurrence and health effects.”<sup>5</sup> States are concerned about the lack of information for many DBPs. In considering how MDBP regulations may change or expand, health effects data and additional data on the accuracy and reliability of analytical methods for detecting unregulated DBPs at low concentrations is critical. ASDWA recommends that EPA present the current state of research for DBPs and microbial contaminants in drinking water and how the Agency plans to fill research gaps for these contaminants, particularly the nine species of haloacetic acids (HAA9), nitrosamines, brominated and iodinated DBPs, and the potential disinfection byproducts included on the Contaminant Candidate List Four (CCL4). This should also include information on precursors for these currently unregulated contaminants.

#### Evaluating and increasing operator capacity for better distribution system management

All drinking water regulations and policy rely on implementation; therefore, it would be shortsighted not to consider the key water system staff who operate the treatment plants and distribution systems to ensure compliance with the MDBP rules. Treatment plant and distribution system operators must have the knowledge, skills, and ability to implement both the current rules and any potential changes and should be a part of future discussions. Water systems are complex and there is a critical need for operators to better understand the water quality from source to tap. Changes in the MDBP rules may lead to the need for changes in operator certification requirements for distribution system operators. It is difficult to balance requirements for operator certification with the fact that the sector is presently facing workforce issues, especially retaining and replacing operators in small, rural water systems. This is a tough conversation, but one that should not be glossed over in future stakeholder engagement. The practicality of the rules and any changes is also important. MDBP rule requirements for sampling and operation evaluations should be reviewed for practicality. MDBP rule requirements for sampling and operation evaluations should be public health based and reviewed for practicality. States want to set up water systems for success in future rounds of MDBP rule updates by ensuring operator capacity issues (including training and staffing) have been addressed.

#### Input on the rule development process

Per ASDWA’s February 2021 letter to EPA, the state and territorial primacy agencies support, with some important caveats, using the negotiated rulemaking procedures for potential revisions of the MDBP rules. EPA used these procedures when developing the initial suite of MDBPs rules, a process in which ASDWA participated and signed the resultant agreements that the Agency used as the foundation for the proposed rules. ASDWA believes that by using these procedures, the complex remaining issues, as well as the risk balancing between the acute microbial risks and the chronic DBP risks, can be appropriately managed and public health protection improved.

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<sup>5</sup> Wu, C., B. Park, M. Sasakura, G. Onstad, A. Kennicutt, D. Wahman, and J. Pressman. “Health Risk Estimation for Unregulated DBPs in Chloraminated Drinking Water,” August 9, 2017. [https://cfpub.epa.gov/si/si\\_public\\_record\\_report.cfm?Lab=NRMRL&dirEntryId=336956](https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NRMRL&dirEntryId=336956).

However, states have a unique role of co-regulators with EPA in the development and implementation of drinking water regulations. Therefore, ASDWA has some recommendations in setting up the negotiated rulemaking procedures that will ensure a partnership between states and EPA and allow the regulators to have an appropriate role in the rulemaking process. These recommendations include:

- Establishing a state-EPA Workgroup as soon as possible, prior to the start of the negotiated rulemaking, in recognition of co-regulator partnership;
- Allowing multiple states at the formal negotiating table to provide a balance with the four drinking water associations: American Water Works Association (AWWA), Association of Metropolitan Water Agencies (AMWA), National Association of Water Companies (NAWC) and National Rural Water Association (NRWA);
- Including state representatives in a “regulator caucus” that can be employed during the negotiated rulemaking;
- Providing for additional funding in ASDWA’s cooperative agreement with EPA, in recognition of the additional staff time and state travel reimbursements for the negotiated rulemaking.

The above provisions will allow for EPA to talk freely with states when needed. ASDWA also encourages EPA to maintain flexibility throughout the rulemaking process and not to limit negotiations with rule contracts and early agreements. While these rules are complex and will take time to revise, more time for rule development does not necessarily make a better regulation. ASDWA encourages EPA to move expeditiously to increase public health through the MDBP rules.

