Potential Revisions to Microbial & Disinfection Byproducts (MDBP) Rules: Background & Charge to NDWAC

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Regulatory History

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- 1979: Interim Total Trihalomethanes (TTHM) Rule
- **1989: Surface Water Treatment Rule (SWTR)**
- 1989: Total Coliform Rule (TCR)
- **1998: Interim Enhanced Surface Water Treatment Rule (IESWTR)**
- **1998: Stage 1 Disinfectants and Disinfection Byproducts Rule (D/DBPR)**
- 2001: Filter Backwash Recycling Rule (FBRR)
- **2002: Long Term 1 Enhanced Surface Water Treatment Rule (LT1)**
- 2006: Long Term 2 Enhanced Surface Water Treatment Rule (LT2)
- **2006: Stage 2 Disinfectants and Disinfection Byproducts Rule (D/DBPR)**
- 2006: Final Ground Water Rule (GWR)
- 2013: Final Revised Total Coliform Rule (RTCR)

***Bolded text indicates rules identified under the Six-Year Review 3 as candidates for revision**

Surface Water Treatment Rules

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- Purpose: Reduce illnesses caused by pathogens in drinking water, particularly *Cryptosporidium*, *Giardia*, and viruses.
- Apply to all public water systems (PWSs) using surface water sources or ground water sources under the direct influence of surface water (GWUDI).
- Set maximum contaminant level goals (MCLGs) for microbial contaminants.
  - SWTR (1989): MCLGs of zero for *Giardia lamblia*, enteric viruses, and *Legionella*.
  - IESWTR (1998): MCLG of zero for *Cryptosporidium* for PWS serving > 10,000 people.
  - LT1 (2002): MCLG of zero for *Cryptosporidium* for PWS serving < 10,000 people.
- Established treatment technique requirements – systems must:
  - Provide 2-log removal of *Cryptosporidium*, 3-log removal/inactivation of *Giardia lamblia*, and 4-log removal/inactivation of enteric viruses.
  - Provide a 0.2 mg/L disinfectant residual entering the distribution system and a detectable residual within.

Surface Water Treatment Rules

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- Established treatment technique requirements (continued)
  - Keep combined filter effluent turbidity under a 0.3 NTU limit in 95% of samples and all measurements must be less than 1 NTU.
  - Keep individual filter effluent turbidity under a 1.0 NTU limit (or 0.5 NTU after backwash).
  - Have a sanitary survey conducted every three years for community water systems (CWSs) and every five years for non-CWSs.
  - Set filtration avoidance criteria.
- These requirements, taken together, minimize risks from microbial pathogens, although there are still significant known risks from opportunistic pathogens in distribution systems, such as *Legionella*.

Stage 1 and Stage 2 DBPR

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- Purpose: Reduce drinking water exposure to DBPs.
- Apply to all community water systems and non-transient non-community water systems that add disinfectant other than UV light and transient non-community water systems that treat with chlorine dioxide.
- Stage 1 and Stage 2 DBPRs (1998 and 2006, respectively) set maximum contaminant level goals (MCLGs) for DBPs.
  - Four trihalomethanes (THMs):
    - chloroform – 0.07 mg/L
    - bromodichloromethane – 0
    - dibromochloromethane – 0.06 mg/L
    - bromoform – 0
  - Three haloacetic acids (HAAs):
    - monochloroacetic acid – 0.07 mg/L
    - dichloroacetic acid – 0
    - trichloroacetic acid – 0.02 mg/L
  - Bromate: 0
  - Chlorite: 0.8 mg/L

Stage 1 and Stage 2 DBPR

- Set maximum contaminant levels (MCLs) for DBPs.
  - Total trihalomethanes (TTHM): 0.080 mg/L
  - Five haloacetic acids (HAA5): 0.060 mg/L
  - Bromate: 0.010 mg/L
  - Chlorite: 1.0 mg/L
- Set maximum residual disinfectant level goals (MRDLGs) and maximum residual disinfectant levels (MRDLs) for disinfectants.
  - Chlorine and chloramines: 4.0 mg/L
  - Chlorine dioxide: 0.8 mg/L
- Stage 2 DBPR bases compliance on locational running annual averages to lower DBP concentrations overall and reduce short-term exposure to high DBP levels.
- Established treatment technique requirements for the removal of DBP precursors (measured as total organic carbon (TOC)) from source water, based on source water TOC and alkalinity.

Six-Year Review 3

- The 1996 SDWA Amendments require EPA to review existing NPDWRs at least every six years and revise, if appropriate. Each revision shall maintain, or provide for greater, protection of the health of persons.
- A determination to potentially revise a regulation initiates a process that will involve more detailed analyses of health effects, analytical and treatment feasibility, occurrence, benefits, costs and other regulatory matters.
- EPA completed the Six-Year Review 3 (SYR 3) process and published the results in January 2017 (FR 82(7): 3518)
  - Assessed relevant new information up to year of 2015
  - https://www.epa.gov/dwsixyearreview/six-year-review-3-drinking-water-standards

Six-Year Review 3 Results

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- EPA determined that multiple microbial-focused NPDWRs are candidates for revision:
  - *Giardia lamblia*, heterotrophic bacteria, *Legionella*, viruses, and *Cryptosporidium*
  - These NPDWRs fall under:
    - Surface Water Treatment Rule (SWTR)
    - Interim Enhanced SWTR (IESWTR)
    - Long-Term 1 Enhanced SWTR (LT1)

- EPA determined that multiple DBP-focused NPDWRs are candidates for revision:
  - Chlorite, five haloacetic acids (HAA5), and total trihalomethanes (TTHM)
  - These NPDWRs fall under:
    - Stage 1 Disinfectants and Disinfection Byproducts Rule (Stage 1 DBPR)
    - Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR)

Charge to NDWAC

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- In November 2021 EPA charged the National Drinking Water Advisory Council (NDWAC or Council), a Federal Advisory Committee (FAC) established under the Safe Drinking Water Act of 1974, to provide the agency with advice and recommendations. In addition, to support the work of the Council, 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.

Overall Schedule

- EPA's schedule for the NDWAC's MDBP Rule Revisions WG meetings started in the Spring 2022 and runs until the Fall 2023
- EPA is targeting the following deadlines:
  - Rule proposal or a formal decision not to propose amended rules: NLT July 31, 2024*
  - Final Agency Action: Final rule or withdraw proposal by September 30, 2027*

* Source: Waterkeepers Alliance, Inc. et al v. U.S. et al, EPA Settlement Agreement, filed June 1, 2020 (19 Civ. 899 (LJL)).


QUESTIONS?