

Summary of Proposed Regulations and Note to Reviewers

310 CMR 22.00: Drinking Water Regulation

MassDEP's Primacy Responsibility for Public Water Systems in Massachusetts

Massachusetts' public water supplies are protected by a coordinated system of federal and state control. The federal Safe Drinking Water Act, 42 U.S.C. § 300f et seq. ("SDWA") was established to protect the quality of drinking water in the United States. The SDWA preserves a significant state role in the regulation of drinking water. EPA has delegated to MassDEP primary responsibility (also called "primacy") to implement the Public Water System (PWS) Supervision program in Massachusetts. To maintain primacy, MassDEP's regulations for contaminants regulated under the National Primary Drinking Water Regulations (NPDWRs) must be no less stringent than the regulations promulgated by EPA. Primacy agencies may establish lower numerical limits for regulated contaminants or promulgate standards for unregulated contaminants using state law authority. MassDEP is not required to adhere to federal rulemaking procedures in promulgating state standards more stringent than the "floor" set by federal law.

MassDEP has state law authority to regulate per- and polyfluoroalkyl substances (PFAS). M.G.L. c. 111, § 160, confers on the Department broad authority to establish more stringent state standards. Section 160 states in relevant part:

The department may cause examinations of such waters to be made to ascertain their purity and fitness for domestic use, or the possibility of their impairing the interests of the public or of persons lawfully using them or of imperilling (sic) the public health. It may make rules and regulations and issue such orders as in its opinion may be necessary to prevent the pollution and to secure the sanitary protection of all such waters used as sources of water supply and to ensure the delivery of a fit and pure water supply to all consumers.

The statutory purpose of M.G.L. c. 111, § 160, expressed through its text, makes it clear that MassDEP has the discretion to create regulations that will best ensure the delivery of a fit and pure water supply to all consumers.

PFAS Background

PFAS have been produced for over 60 years. Numerous PFAS are in the environment, including commercial products and byproducts and wastes released from production facilities. Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) are the most widely produced perfluorocarbons and are studied worldwide. They both contain eight carbon atoms, mostly in a linear chain. The per- prefix in the names means that all of the available hydrogen atoms that were attached to carbon atoms have been replaced by fluorine atoms. That causes them to be biologically stable chemicals and to be very lipophobic (repel fats) and hydrophobic (repel water), and it also increases their acidities. They also have low volatility. As surface-active agents, they are used in many industrial and commercial products, such as water and soil repellent coatings on carpets, fabrics and leather, foams used in firefighting, electroplating,

photography, paper coatings, and pesticides. PFOA and PFOS can form by degradation from higher molecular weight perfluorocarbons.

In May 2016, EPA revised its provisional drinking water health advisories for PFOA and PFOS downward to 70 parts per trillion (ppt) for the sum of PFOA and PFOS. The lifetime health advisory is to be applied to PFOA and PFOS individually, or in combination, if both chemicals are present above the reporting limit. This change significantly increased the number of water systems with levels of concern.

In June 2018, due to health concerns, MassDEP established an Office of Research and Standards Guideline (ORSG) level for drinking water that extended the EPA advisory to include PFOS, PFOA, perfluorononanoic acid (PFNA), perfluorohexane sulfonic acid (PFHxS), and perfluoroheptanoic acid (PFHpA). The ORSG level is 70 ppt, and applies to the total summed level of all five compounds. Based on this ORSG, MassDEP recommends the following:

1. Consumers in sensitive subgroups (pregnant women, nursing mothers and infants) not consume water when the level of the five PFAS substances, individually or in combination, is above 70 ppt.
2. Public water suppliers take steps expeditiously to lower levels of the five PFAS, individually or in combination, to below 70 ppt for all consumers.

Based on the latest technical information from MassDEP's Office of Research and Standards, MassDEP proposed earlier this year a groundwater (GW-1) clean up standard in the Massachusetts Contingency Plan, 310 CMR 40.0000, at 20 ppt for the sum of the concentrations of six PFAS compounds, including all five compounds addressed by the ORSG and perfluorodecanoic acid (PFDA). Since 2013, the sum of the concentrations of the six PFAS compounds above 20 ppt have been detected at over 20 PWSs in Massachusetts.

Proposed Revisions

The proposed new regulation establishes a Total PFAS Maximum Contaminant Level (MCL) of 20 ppt for six PFAS contaminants: PFOS, PFOA, PFHxS, PFNA, PFHpA, and PFDA. This proposal is consistent with the proposed groundwater (GW-1) clean up standard in the Massachusetts Contingency Plan, 310 CMR 40.0000 and technical information from MassDEP's Office of Research and Standards.

Public Water Systems in Massachusetts include 526 Community Water Systems (such as municipalities, trailer parks, apartments/condominiums, and prisons that serve residential customers year-round), 252 Non-Transient, Non-Community Water Systems (NTNCs) (such as schools, daycares, and larger businesses serving 25 or more of the same non-residential people each day, and 865 Transient, Non-Community Water Systems (TNCs) (such as recreational areas, campgrounds, hotels and motels, and small businesses). This proposed rule will apply to all public water systems. Community Water Systems and NTNCs will be required to meet all

requirements under 310 CMR 22.07(G). These systems either serve entire communities, or in the case of NTNC systems, do not serve residences, but do serve the same people on a regular basis (e.g., schools, offices). This proposed rule requires that TNCs collect one sample of PFAS and submit the results to MassDEP. This will help MassDEP determine the extent of PFAS presence in TNCs. Most people drinking water from these facilities are not doing so consistently every day so their exposure to PFAS from these PWSs is limited. The proposed rule for TNCs requires one sample from these systems. If that one sample result merits, additional follow up actions would be required as determined on a system-by-system basis.

The proposed regulation includes minimum reporting requirements, required actions when PFAS is detected, conditions under which sample results may be invalidated, how compliance is determined, monitoring protocols and schedules, analytical requirements, technologies available for treating PFAS in water, applicability to different types of Public Water Supplies and information on health effects of these compounds for use in Consumer Confidence Reports. Under the proposed regulation, systems subject to the MCL will initially be required to take quarterly samples over the course of one year. Thereafter, depending on the results, systems will transition to more or less frequent routine monitoring depending on the results of their initial testing. The proposed regulation provides for monitoring waivers if specific circumstances are met.

Schedule: Implementation under the proposed rule will be staggered by population served and type of system. Public water systems serving more than 50,000 consumers each will be required to initiate monitoring by April 1, 2020. This affects 20 systems serving approximately 4.3 million consumers. Systems serving less than or equal to 50,000 but more than 10,000 consumers will be required to initiate monitoring by October 1, 2020. This affects 106 systems serving approximately 2.6 million consumers. Systems serving less than or equal to 10,000 consumers will be required to initiate monitoring by October 1, 2021. There are 569 systems serving 10,000 or fewer consumers, affecting 708,000 consumers. All Transient Non-Community systems that have not previously sampled must complete monitoring by September 30, 2022.

Note to Reviewers: MassDEP is interested in receiving public comments on several aspects of the draft regulations. These are:

1. **Applicability of Regulations.** The proposed rule applies to all public water systems. Community and NTNC systems will be required to meet all requirements under 310 CMR 22.07(G). These systems either serve entire communities, or in the case of NTNC systems, do not serve residences, but do serve the same people on a regular basis such as places of work, schools, daycares and recreational areas. The rule also requires that TNCs, which serve a transient or changing set of consumers like rest areas or restaurants, collect one sample and submit the results to MassDEP. If TNCs were to be regulated further, a separate risk assessment designed for TNC consumers would be appropriate due to differing exposure assumptions at these facilities. That assessment would likely result in calculation of a different MCL value for these systems.

2. **Staggered Implementation.** MassDEP has proposed that Public Water Suppliers begin initial monitoring on a schedule based on their population served. The regulations propose the following schedule:
- For Community and NTNC PWSs serving more than 50,000 individuals, begin April 1, 2020 (4.3 million consumers affected);
 - For Community and NTNC PWSs serving 50,000 individuals or fewer, but greater than 10,000 individuals, begin by October 1, 2020 (2.6 million consumers affected);
 - For Community and NTNC PWSs serving 10,000 or fewer individuals, begin by October 1, 2021 (708,000 consumers affected); and
 - TNCs must collect a single sample by September 30, 2022.

MassDEP has proposed this staggered start to accommodate an anticipated demand for services related to laboratory analyses, engineering design, equipment procurement, and construction.

3. **Monitoring Scheme.** MassDEP has various monitoring thresholds and schedules for initial monitoring, routine monitoring, increased monitoring as a result of PFAS detection, and monitoring waivers. In its proposal, MassDEP seeks to balance the risk to public health from short-term exposure with the cost of monitoring.
4. **Electronic Reporting.** MassDEP proposes that monitoring results be submitted electronically to the department to increase responsiveness by both MassDEP and the PWS, to increase the efficiency of data management, and to decrease the likelihood of human error by decreasing the number of times the data will be handled.
5. **Consumer Notice.** MassDEP is proposing an early notification, before there has been a determination that the MCL has been violated, in the cases where the average of a PFAS detection and a confirmatory sample exceeds the Total PFAS MCL. This early warning recognizes the sub-chronic risk of exposure and that at-risk sub-populations may choose to take action and discontinue using the water before a determination has been made that there is an MCL violation.
6. **Compliance Calculation.** MassDEP has proposed that the compliance calculation be based on a Running Quarterly Average of monthly compliance monitoring result(s) from each of the prior three calendar months. Samples with results below the Minimum Reporting Levels (“MRLs” or those minimum concentrations that can be reported as a quantitated value for a target analyte in a sample following analysis) but above one-third of the MRL do contain PFAS. To recognize this presence of PFAS in a sample, MassDEP proposes if an analytical result is equal to or greater than one-third of the MRL

but less than the MRL, then the Running Quarterly Average shall be calculated using one-half of the MRL as the concentration for that PFAS.

- 7. Maximum Contaminant Level Goal (MCLG).** MassDEP is not proposing an MCLG for PFAS. An MCLG is the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, allowing an adequate margin of safety. MCLGs are non-enforceable public health goals and are typically set at zero for carcinogens. MassDEP considered the potential carcinogenicity of PFAS. Through this preliminary assessment, limited human and animal bioassay data were identified that demonstrate associations between exposures to these compounds and certain cancers. At this time however, the level of cancer risk posed by PFAS in drinking water is uncertain. MassDEP is following the research in this area closely. If the connection between PFAS and cancer risk is strengthened, MassDEP will reevaluate the basis of the MCL and may adjust it accordingly.