

310 CMR: DEPARTMENT OF ENVIRONMENTAL PROTECTION

310 CMR 22.00: DRINKING WATER

Section

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22.02: Definitions

(1) As used in 310 CMR 22.00, the following terms shall have the following meanings:

Compliance Cycle means the nine-year (calendar year) cycle during which public water systems must monitor. Each Compliance Cycle consists of three three-year Compliance Periods. The first calendar year cycle begins January 1, 1993 and ends December 31, 2001; the second begins January 1, 2002 and ends December 31, 2010; the third begins January 1, 2011 and ends December 31, 2019. Each subsequent Compliance Cycle shall commence on the 1st day of January immediately following the last day of the prior Compliance Cycle, and shall end on the 31st day of December in its ninth calendar year.

Compliance Period means a three-year (calendar year) period within a Compliance Cycle. Each Compliance Cycle has three three-year Compliance Periods. Within the first Compliance Cycle, the first Compliance Period runs from January 1, 1993 to December 31, 1995; the second from January 1, 1996 to December 31, 1998; the third from January 1, 1999 to December 31, 2001. Each subsequent Compliance Period shall commence on the 1st day of January immediately following the last day of the prior Compliance Period, and shall end on the 31st day of December in its third calendar year.

Confirmatory Sample or Confirmation Sample shall mean a sample collected from the same Sampling Point as an initial sample for analysis, in order to verify the analytical results of the initial sample.

Minimum Reporting Level or MRL means the minimum concentration that can be reported as a quantitated value for a target analyte in a sample following analysis.

Reliably and Consistently ~~below~~ Below the MCL means that though a system detects contaminants in its water supply, it has sufficient knowledge of the source or extent of the contamination to predict that the MCL would not be exceeded in the future. (E.g., wide ~~Wide~~ variations in ~~an~~ analytical results or an analytical results which is close to the MCL are examples of situations where systems would not be Reliably and Consistently Below the MCL.)~~meet the “reliably and consistently” test.~~

Running Quarterly Average means the average of the monthly compliance monitoring result(s) from each of the prior three calendar months. If multiple compliance monitoring samples are collected in any given calendar month (e.g., Confirmatory Samples), then the results of these samples shall be averaged in order to establish a single representative contaminant concentration for that calendar month. However, for purposes of determining the Running Quarterly Average, if a Confirmatory Sample is collected in the month following the month when an initial sample was collected, then the Confirmatory Sample shall be included as a monthly compliance monitoring result for the month in which it was collected. If no compliance monitoring samples have been collected for a given calendar month, then the Running Quarterly Average calculation shall exclude a concentration value for that month and instead shall be based upon the sum of the monthly representative contaminant concentrations from the month(s) for which they are available divided by that number of months. (E.g., if no samples were collected in one month, then the Running Quarterly Average would be the sum of the representative contaminant concentrations from the other two months, divided by two.) Results from additional samples that were collected and analyzed in the same manner as compliance monitoring samples and that are representative of drinking water being provided to the public may also be used in this calculation, in a manner consistent with the averaging method described above. Use of such additional samples, if requested by a Supplier of Water, shall be subject to the Department’s prior approval; or may be required by the Department pursuant to 310 CMR 22.03(11).

22.03: Compliance

(13) A Supplier of Water shall submit or report to the Department all data or information required to be submitted or reported pursuant to 310 CMR 22.00, including without limitation 310 CMR 22.15, in the format and manner as specified and approved by the Department. Where required, including without limitation as specified in 310 CMR 22.07G(17), written submissions shall be made using the electronic filing system designated by the Department. A Supplier of Water may request in writing a waiver from any applicable electronic filing requirement, for a limited period of time. All such requests shall be based on a showing that internet access necessary to make the

required electronic filings is not available, despite the reasonable efforts of the Supplier of Water or party acting on its behalf (e.g., a laboratory) to acquire the needed internet access. All electronic filing waiver requests shall be made on a form provided by the Department and shall be subject to the Department's written approval. Any Supplier of Water whose waiver request is approved shall make paper filings in lieu of the applicable electronic filings during the period of the waiver using printed copies of the applicable filing forms.

22.07G: Per- and Polyfluoroalkyl Substances (PFAS) Monitoring and Analytical Requirements

(1) General Applicability. Every Supplier of Water operating a Community Water System or Non-transient, Non-community Water System shall be subject to 310 CMR 22.07G(3) through (17), inclusive.

(2) Special Applicability for Transient, Non-community Water Systems. Every Supplier of Water operating a Transient, Non-community Water System shall collect, analyze and report the results of one sample at each Sampling Point, or alternate sampling location required by the Department pursuant to 310 CMR 22.07G(4)(a) or (b), no later than September 30, 2022. All such monitoring shall be performed in compliance with the provisions addressing monitoring protocols, invalidation of PFAS samples, PFAS analytical requirements, PFAS reporting requirements, PFAS minimum reporting levels and electronic filing requirements set forth in 310 CMR 22.07G(4), (9), (12), (13), (16) and (17), respectively.

(3) Total Per- and Polyfluoroalkyl Substances MCL. The Maximum Contaminant Level (MCL) for Total PFAS shall be 0.000020 milligrams per liter (mg/l) or 20 nanograms per liter (ng/l, calculated to two significant figures). PFAS Detection shall mean a measured concentration of any PFAS in the scope of the analytical method greater than or equal to the analytical laboratory's MRL. Total PFAS shall mean the sum of the concentrations of each contaminant listed in the following table:

<u>CAS No.</u>	<u>Contaminant</u>
<u>1763-23-1</u>	<u>Perfluorooctane Sulfonic Acid (PFOS)</u>
<u>335-67-1</u>	<u>Perfluorooctanoic Acid (PFOA)</u>
<u>335-46-4</u>	<u>Perfluorohexane Sulfonic Acid (PFHxS)</u>
<u>375-95-1</u>	<u>Perfluorononanoic Acid (PFNA)</u>
<u>375-85-9</u>	<u>Perfluoroheptanoic Acid (PFHpA)</u>
<u>335-76-2</u>	<u>Perfluorodecanoic Acid (PFDA)</u>

Total PFAS Detection shall mean the sum of the measured concentrations of the PFAS listed in 310 CMR 22.07G(3).

(4) Monitoring Protocols. For the purpose of determining compliance with the Total PFAS MCL set forth in 310 CMR 22.07G(3), monitoring shall be conducted as follows:

- (a) Single Source Entry Points. Each Public Water System that draws water from a single source shall take a minimum of one sample at every entry point to the Distribution System which is representative of each of its sources after treatment (Sampling Point). Each sample shall be taken at the same Sampling Point unless the Department determines, based upon local conditions (e.g., facility design), that an alternate sampling location(s) would be more representative of each source or treatment plant.
- (b) Multiple Source Entry Points. Any Public Water System that draws water from more than one source, where the sources are combined before distribution, shall sample at every entry point to the Distribution System which is representative of all such combined sources after treatment (Sampling Point) during periods of normal operating conditions (i.e., when water representative of all sources is being used). If all sources are not operated simultaneously under normal operating conditions, then additional samples

shall be collected representing each source that is operated alone and/or each combination of sources that are operated together. Each sample shall be taken at the same Sampling Point unless the Department determines, based upon local conditions (e.g., facility design), that an alternate sampling location(s) would be more representative of each source or treatment plant.

- (c) Consecutive Systems. Unless required by the Department to evaluate PFAS levels, each Consecutive Public Water System shall be exempt from conducting compliance monitoring for PFAS under 310 CMR 22.07G for its purchased portion of water, provided that the Public Water System from which the water is obtained has conducted the monitoring required under 310 CMR 22.07G.

(5) Initial Monitoring.

- (a) Applicability. 310 CMR 22.07G(5) shall apply to each Sampling Point, or alternate sampling location required by the Department pursuant to 310 CMR 22.07G(4)(a) or (b), where:

1. there have been no PFAS detections; or
2. there has been a PFAS detection, but the average of the PFAS detection and an associated Confirmatory Sample is less than or equal to 0.000010 mg/l; or
3. subsequent to a PFAS detection described in 310 CMR 22.07G(5)(a)2., there have been no PFAS detection(s) greater than 0.000010 mg/l.

- (b) Frequency and Timing.

1. Except as provided in 310 CMR 22.07G(5)(b)2., for each such location required to be sampled pursuant to 310 CMR 22.07G(5), four consecutive quarterly samples shall be collected and each such sample shall be analyzed for PFAS in accordance with 310 CMR 22.07G(12). Each sample shall be collected the first month of every quarter during initial monitoring. A Supplier of Water serving the specified population shall commence initial monitoring on the date set forth below.

a. greater than 50,000 individuals, April 1, 2020;

b. 50,000 individuals or fewer, but greater than 10,000 individuals, October 1, 2020; or

c. 10,000 or fewer individuals, October 1, 2021.

2. If a Supplier of Water meets any of the following conditions after the applicable commencement dates described in 310 CMR 22.07G(5)(b)1., it shall commence initial monitoring of such locations with the first full calendar quarter of delivering water to the public. Said conditions are as follows:

a. begins operation of a new Public Water System,

b. puts a New Source on-line, or

c. reactivates an existing source.

- (c) Waivers. Any Public Water System subject to 310 CMR 22.07G(5) all of whose analytical results for the first two quarters of monitoring described in 310 CMR 22.07G(5)(b) are below the applicable Minimum Reporting Levels (or MRLs) may submit a written request to waive the third and fourth quarters of such monitoring, subject to the Department's written approval based upon a determination that there is no known or suspected PFAS contamination in the vicinity of the Public Water System or its sources of water.

(6) Routine Monitoring.

- (a) Applicability. 310 CMR 22.07G(6) shall apply to any Sampling Point, or alternate sampling location required by the Department pursuant to 310 CMR 22.07G(4)(a) or (b), at which there are no PFAS detections during initial monitoring or during three years of annual monitoring.

- (b) Frequency and Timing. A Public Water System may reduce the monitoring frequency for such locations in each subsequent Compliance Period to the following number of quarters all within any one calendar year, the selection of which quarters shall be subject to the Department's prior written approval:

1. if serving more than 3,300 individuals, to a minimum of one sample taken in the first month of any two selected quarters; or

2. if serving fewer than or equal to 3,300 individuals, to a minimum of one sample taken in the first month of any one selected quarter.

(c) Waivers.

1. Eligibility and Duration. Commencing January 1, 2023, any Supplier of Water subject to 310 CMR 22.07G(6) may submit a written request to the Department for a waiver from the monitoring requirements set forth in 310 CMR 22.07G(6)(b)1. or 2. for up to a single Compliance Period. A Supplier of Water may reapply to the Department for a waiver for each successive Compliance Period, provided however that sampling shall occur at least once during the first Compliance Period of each successive Compliance Cycle.
2. Application. Each waiver request made pursuant to 310 CMR 22.07G(6)(c)1. shall include a description of land uses (both current and prior) within the Watershed, Zone II or IWPA, that may potentially contribute PFAS to the Public Water System's source(s) of water supply, including without limitation all known manufacture, storage, use or disposal of PFAS or PFAS containing materials.
3. Basis. Approval of a waiver request made pursuant to 310 CMR 22.07G(6)(c)1. shall be subject to the Department's written determination that there is no reason to suspect PFAS contamination in the vicinity of the Public Water System or its sources of water. Such determination shall be based on the information submitted pursuant to 310 CMR 22.07G(6)(c)2. and any other relevant information known to the Department, including without limitation the following factors:
 - a. previous analytical results;
 - b. proximity of the Public Water System or its sources of water to potential sources of contamination including but not limited to manufacturing, distribution, or storage facilities; hazardous and solid waste landfills and other waste handling or treatment facilities; wastewater treatment plants; airports; current and former military bases; facilities where fire training occurs; and areas where the application of bio-solids occurs;
 - c. proximity of the Public Water System or its sources of water to known spills or leaks of chemicals, including but not limited to any release, site or disposal site as defined under 310 CMR 40.0000;
 - d. environmental persistence and transport of PFAS;
 - e. how well the source(s) of water supply is protected against contamination due to such factors as the depth of the well, the type of soil, the integrity of the well casing, and other relevant protective measures;
 - f. completed remediation activities that removed sources of PFAS;
 - g. source operations (e.g., manifold or seasonal sources, blending, flow rates); and
 - h. use of existing treatment processes which have the potential to reduce PFAS concentrations in the finished water.

(7) PFAS Detections.

- (a) Applicability. The requirements set forth below shall apply at any Sampling Point, or alternate sampling location required by the Department pursuant to 310 CMR 22.07G(4)(a) or (b), following:
 1. the first PFAS detection during either initial or routine monitoring;
 2. the second or later Total PFAS detection during initial monitoring which is greater than 0.000010 mg/l;
 3. the second or later Total PFAS detection during routine monitoring which is greater than 0.000010 mg/l, unless the Department determines in writing that such location is Reliably and Consistently Below the MCL; or
 4. the receipt of an analytical result during quarterly or annual monitoring which is outside the historic range of PFAS results, as determined by the Department.
- (b) Reporting. Any PFAS detection described in 310 CMR 22.07G(7)(a)1., 2., or 3. shall be reported to the Department within seven days of receipt of such result from the laboratory.

- (c) Confirmatory Sampling. The Supplier of Water shall obtain a Confirmatory Sample for any analytical result described in 310 CMR 22.07G(7)(a), as soon as possible after receipt of such result from the laboratory or notification from the Department, as applicable, and no later than two weeks from such date.
- (d) Source Sampling. If a PFAS detection described in 310 CMR 22.07G(7)(a)1., 2. or 3. represents multiple sources, then samples representing the individual source water shall also be collected and analyzed for PFAS.
- (e) Consumer Notice. Any Supplier of Water subject to 310 CMR 22.07G(7), where there has been a PFAS detection and the average of such detection and an associated Confirmatory Sample exceeds the Total PFAS MCL, shall provide notice of the exceedance in accordance with the following requirements:
 - 1. such notice shall be provided to all persons served by the affected Public Water System, including without limitation consumers who do not receive water bills;
 - 2. such notice shall be provided as soon as practical and no later than 30 days after receipt of Confirmatory Sample results from the laboratory;
 - 3. such notice shall be provided by mail and/or other method approved by the Department (e.g., a Non-transient Non-community Water System may be permitted to post the results on a bulletin board in the facility for a minimum number of days);
 - 4. such notice shall include the results and average of the PFAS samples; list the Total PFAS MCL and the definition of MCL as provided in 310 CMR 22.02(1); include a Department approved explanation of the health effects of PFAS and steps consumers can take to reduce exposure to PFAS in drinking water; and contact information for the Supplier of Water;
 - 5. until either the Public Water System obtains a monitoring result at or below the Total PFAS MCL at such locations as described in 310 CMR 22.07G(7)(a) or the Supplier of Water takes the contaminated source(s) off-line:
 - a. if such notice was mailed, it shall be re-mailed quarterly;
 - b. if such notice was posted, it shall be maintained in place;
 - c. if such notice was published in a local newspaper, it shall be re-published quarterly; and/or
 - d. if such notice was provided by other Department-approved methods, it shall be provided quarterly by the same methods; and
 - 6. a copy of such notice shall be submitted to the Department upon initial and each subsequent issuance if required by 310 CMR 22.07G(7)(e)5. along with a written certification by the Supplier of Water that the notice has been distributed in compliance with 310 CMR 22.07G(7)(e)1. through 4., inclusive.

(8) Increased Monitoring Frequency Following PFAS Detection. 310 CMR 22.07G(8) shall apply to each Sampling Point, or alternate sampling location required by the Department pursuant to 310 CMR 22.07G(4)(a) or (b), where there has been a PFAS detection, in accordance with the following:

- (a) Monthly Monitoring.
 - 1. Except as provided in 310 CMR 22.07G(8)(a)2., a Supplier of Water shall monitor such locations on a monthly basis to determine compliance with the Total PFAS MCL as per 310 CMR 22.07G(10), if:
 - a. there has been a Total PFAS detection and the average of such detection and an associated Confirmatory Sample is greater than 0.000010 mg/l;
or
 - b. the Department determines in writing that a location subject to quarterly or annual monitoring is no longer Reliably and Consistently Below the MCL.
 - 2. After completing the first quarter of monthly monitoring pursuant to 310 CMR 22.07G(8)(a)1., a Supplier of Water who is in violation of the Total PFAS MCL, determined as per 310 CMR 22.07G(10), may request written approval from the Department to use the results from a single sample taken in the first month of each subsequent quarter to identify violations of the Total

PFAS MCL rather than using the average of the three monthly samples otherwise required, subject to the following:

- a. upon such written approval, if any such single quarterly sample alone exceeds the Total PFAS MCL, such Supplier of Water shall be in violation of the Total PFAS MCL immediately and shall provide public notice in accordance with 310 CMR 22.16; and
 - b. if any such single sample is less than or equal to the Total PFAS MCL, then such Supplier of Water shall continue monthly monitoring during the remaining two months of the quarter and compliance with the Total PFAS MCL shall be determined as per 310 CMR 22.07G(10).
- (b) Quarterly Monitoring. If any such location has had PFAS treatment installed and the Department determines in writing that such location is Reliably and Consistently Below the MCL, then the Supplier of Water shall monitor that location in the first month of each quarter.
- (c) Annual Monitoring. A Supplier of Water shall monitor such locations on an annual basis during the first month of the calendar quarter that previously yielded the highest analytical result. Such annual monitoring shall occur if:
1. all of the following are true:
 - a. all four quarters of initial monitoring pursuant to 310 CMR 22.07G(5)(a) have been completed;
 - b. the first Total PFAS detection has occurred during such initial monitoring and the average of such detection and an associated Confirmatory Sample is less than or equal to 0.000010 mg/l; and
 - c. the second or later Total PFAS detections have occurred during such initial monitoring that are greater than 0.000010 mg/l, the average of each such detections with their associated Confirmatory Sample is less than or equal to 0.000010 mg/l;
 2. the Department determines in writing that a location subject to monthly monitoring under 310 CMR 22.07G(8)(a), without the installation of PFAS treatment, is Reliably and Consistently Below the MCL;
 3. the Department determines in writing that a location subject to quarterly monitoring under 310 CMR 22.07G(8)(b), taking into consideration any documentation provided by such Supplier of Water and any other relevant factors, would be Reliably and Consistently Below the MCL without PFAS treatment; or
 4. a location subject to routine monitoring under 310 CMR 22.07G(6):
 - a. has its first Total PFAS detection and the average of such detection and an associated Confirmatory Sample is less than or equal to 0.000010 mg/l; or
 - b. has a second or later Total PFAS detection less than or equal to 0.000010 mg/l and the Department determines in writing that such location is not Reliably and Consistently Below the MCL.

(9) Invalidation of PFAS Samples. All PFAS results shall be subject to the Department's review and may be invalidated where the associated quality control information indicates a failure in sample collection, sample preparation or analytical measurement. Invalidated results shall not be used in determining compliance with the Total PFAS MCL established in 310 CMR 22.07G(3). Unless waived in writing by the Department as unnecessary (e.g., based upon the frequency of ongoing monitoring), a Supplier of Water shall collect and analyze a replacement sample for each invalidated sample.

(10) Total PFAS Compliance Calculations. Compliance with the Total PFAS MCL established in 310 CMR 22.07G(3) shall be determined in accordance with the requirements set forth below.

- (a) For a Supplier of Water monitoring monthly, compliance shall be determined once per calendar quarter by calculating a Running Quarterly Average at each Sampling Point, or alternate sampling location required by the Department pursuant to 310 CMR 22.07G(4)(a) or (b). If any one such sampling location is in violation, then the Public Water System shall be considered in violation.

- (b) A Supplier of Water monitoring quarterly or less frequently who detects PFAS within its Public Water System shall not be in violation, except as provided in 310 CMR 22.07G(10)(c), until:
 - 1. it has conducted monthly sampling pursuant to 310 CMR 22.07G(8)(a), and
 - 2. a calculation made in accordance with 310 CMR 22.07G(10)(a) would result in a violation.
- (c) If any sample result would cause the Running Quarterly Average to exceed the Total PFAS MCL at any Sampling Point, or alternate sampling location required by the Department pursuant to 310 CMR 22.07G(4)(a) or (b), then the Public Water System shall be in violation immediately and shall be subject to the requirements 310 CMR 22.07G(11).
- (d) If any Supplier of Water fails to collect the required number of samples, compliance shall be determined based on the total number of samples collected.
- (e) If an analytical result is less than one-third of the MRL, then the Running Quarterly Average shall be calculated using zero as the concentration for that PFAS.
- (f) 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.

(11) When a Running Quarterly Average Exceeds a Total PFAS MCL. If a Running Quarterly Average calculated pursuant to 310 CMR 22.07G(10)(a) and rounded to the same number of significant figures as the Total PFAS MCL, exceeds the Total PFAS MCL, then the Supplier of Water shall:

- (a) report to the Department in accordance with 310 CMR 22.15,
- (b) provide public notice in accordance with 310 CMR 22.16, and
- (c) comply with the requirements of 310 CMR 22.03(14) and such other applicable provisions of 310 CMR 22.00, as specified by the Department.

(12) PFAS Analytical Requirements.

- (a) Methods of Analysis. Analysis for PFAS listed in 310 CMR 22.07G(3) shall be conducted using either of the following EPA methods:
 - 1. Method 537. US Environmental Protection Agency. September 2009. Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). Ver. 1.1. EPA Document #: EPA/600/R-08/092;
or
 - 2. Method 537.1. US Environmental Protection Agency. November 2018. Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). Ver. 1.0. EPA Document #: EPA/600/R-18/352.
- (b) Scope of Analysis. All samples analyzed pursuant to 310 CMR 22.07G shall be analyzed for the full scope of PFAS covered by the method selected in 310 CMR 22.07G(12)(a).

(13) PFAS Reporting Requirements. All analytical results, for all PFAS within the scope of the analytical method selected in 310 CMR 22.07G(12)(a), whether obtained pursuant to a requirement of 310 CMR 22.00 or on a voluntary basis, shall be reported to the Department in accordance with 310 CMR 22.15.

(14) Use of Previously Collected PFAS Data.

- (a) Eligibility. A Supplier of Water, prior to the applicable commencement date of initial monitoring specified in 310 CMR 22.07G(5)(b)1., may request the Department's written approval to substitute monitoring data which was obtained during different calendar quarters and prior to such commencement date for up to an equivalent number of sequential quarters of initial monitoring otherwise required pursuant to 310 CMR 22.07G(5).
- (b) Basis of Approval. Such approval shall be based upon a determination as to whether the substitute monitoring data was collected and analyzed in a manner consistent with or otherwise equivalent to the requirements of 310 CMR 22.07G. A Supplier of Water shall notify the Department, prior to the commencement date of initial

monitoring specified in 310 CMR 22.07G(5)(b)1., of its intention to substitute such approved monitoring data.

(c) Requirements Following Notification. Following the notification required by 310 CMR 22.07G(14)(b), such Supplier of Water shall be subject to the requirements of 310 CMR 22.07G, subject to any Department approved modification taking into account any actions the Supplier of Water has taken in response to such substitute monitoring data (e.g., public notification, installation of treatment, etc.), as if the analytical results for such approved monitoring data were received on the date of such notification.

(15) Monitoring Schedules. A Supplier of Water shall monitor its Public Water System during each Compliance Period in accordance with the requirements 310 CMR 22.07G, unless otherwise directed in writing by the Department based on emergency considerations, laboratory capacity, and Public Water System operational considerations.

(16) PFAS Minimum Reporting Levels. Laboratories conducting PFAS analysis for each contaminant listed at 310 CMR 22.07G(3) shall be capable of obtaining each individual MRL less than or equal to 0.000020 mg/l or 2.0 ng/l.

(17) Electronic Filing Requirement. All analytical results required to be submitted to the Department pursuant to 310 CMR 22.07G shall be made by electronic submission, in accordance with 310 CMR 22.03(13).

22.13: Variances.

(7) ...

(e) Engineering Assessment Option: If a system can demonstrate through comprehensive engineering assessments, which may include pilot plant studies, that the treatment methods identified in 310 CMR 22.13(7)(a) through (c), or (g), would only achieve a de minimis reduction in contaminants, the Department may issue a schedule of compliance that requires the system being granted the variance to examine other treatment methods as a condition of obtaining the variance.

...

(g) Best Available Technologies (BATs) for PFAS. Any Public Water System subject to 310 CMR 22.07G, as a condition for granting a variance under 310 CMR 22.13 or 22.13A, shall first install and use any of the following treatment technologies, except as provided in 310 CMR 22.13(7)(e):

1. granular activated carbon,
2. powdered activated carbon,
3. ion exchange resins,
4. nanofiltration, and
5. reverse osmosis.

22.16 Table 6, Violations and Other Situations Requiring Public Notice

Contaminant	MCL/MRDL/TT Violations ²		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
I. Violations of National Primary Drinking Water Regulations and 310 CMR 22.00				
...				
<u>I. Per- and Polyfluoroalkyl Substances (PFAS)</u>				
<u>1. Total PFAS</u>	<u>2</u>	<u>310 CMR 22.07G</u>	<u>3</u>	<u>310 CMR 22.07G</u>

22.16 Table 7, Standard Health Effects Language for Public Notification

Contaminant	MCLG ¹ mg/l	MCL ² mg/l	Standard health effects language for public notification
National Primary Drinking Water Regulations (NPDWR) and Massachusetts Drinking Water Regulations:			
...			
<u>J. Per- and Polyfluoroalkyl Substances (PFAS)</u>			
<u>91. Total PFAS</u>	<u>None</u>	<u>20 ng/l²⁴</u>	<u>Some people who drink water containing these PFAS in excess of the MCL may experience certain adverse effects. These could include effects on the liver, blood, immune system, thyroid, and fetal development. These PFAS may also elevate the risk of certain cancers.</u>

²⁴ Nanograms per liter.

22.16A(27)(a) Table 1: Regulated Contaminants Chart

Key:

AL= Action Level

CCR=Consumer Confidence Report

...

Contaminant	Traditional MCL	To convert for CCR, multiply by	MCL in CCR Units	MCLG in CCR units	Major Sources in Drinking Water	Health Effects Language
<u>Per- and Polyfluoroalkyl Substances (PFAS)</u>						
<u>92. Total PFAS</u>	<u>0.000020 mg/l</u>	<u>1,000,000</u>	<u>20 ng/l (or ppt)</u>	<u>None</u>	<u>Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture and oil resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams.</u>	<u>Some people who drink water containing these PFAS in excess of the MCL may experience certain adverse effects. These could include effects on the liver, blood, immune system, thyroid, and fetal development. These PFAS may also elevate the risk of certain cancers.</u>

(b) Table 2 – Unregulated Contaminants Chart

Key:

CASRN – Chemical Abstract Services Registry Number
CCR – Consumer Confidence Report

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Chemical (CASRN)	ORSG	To convert for CCR, multiply by	ORSG in CCR units	Source to Drinking Water	Health Effects
Perfluorooctane Sulfonic Acid (PFOS)(1763231)	*	-	-	-	-
Perfluorooctanoic Acid (PFOA)(335671)	*	-	-	-	-
<u>Hexafluoropropylene oxide dimer acid (HFPO-DA) (13252-13-6)</u>	* -	=	=	=	=
<u>N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) (2991-50-6)</u>	* -	=	=	=	=
<u>N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) (2355-31-9)</u>	* -	=	=	=	=
Perfluorobutanesulfonic Acid (PFBS) (375735)	*	-	-	-	-
Perfluorohexane Sulfonic Acid (PFHxS)(355464)	*	-	-	-	-
Perfluoroheptanoic Acid (PFHpA)(375859)	*	-	-	-	-
Perfluorononanoic Acid (PFNA)(375951)	*	-	-	-	-
<u>Perfluorododecanoic acid (PFDoA) (307-55-1)</u>	* -	=	=	=	=
<u>Perfluorohexanoic acid (PFHxA) (307-24-4)</u>	* -	=	=	=	=
<u>Perfluorotetradecanoic acid (PFTA) (376-06-7)</u>	* -	=	=	=	=
<u>Perfluorotridecanoic acid (PFTrDA) (72629-94-8)</u>	* -	=	=	=	=
<u>Perfluoroundecanoic acid (PFUnA) (2058-94-8)</u>	* -	=	=	=	=
<u>11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (763051-92-9)</u>	* -	=	=	=	=
<u>9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (756426-58-1)</u>	* -	=	=	=	=
<u>4,8-dioxa-3H-perfluorononanoic acid (ADONA) (919005-14-4)</u>	* -	=	=	=	=

* There is no ORS Guideline or UCMR3 health benchmark for this contaminant. The Minnesota Department of Health recently established a drinking water guidance value of 2,000 ppt for PFBS. See <http://www.health.state.mn.us/divs/eh/risk/guidance/gw/pfbsinfo.pdf>.