UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMITS FOR DISCHARGES FROM POTABLE WATER TREATMENT FACILITIES TO WATERS OF THE UNITED STATES PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES GENERAL PERMIT NUMBERS: MAG640000 and NHG640000

PUBLIC NOTICE START AND END DATES:

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1.0 Coverage Under This Permit

The Environmental Protection Agency, Region 1 ("EPA" or "Region 1"), is reissuing the Draft National Pollutant Discharge Elimination System (NPDES) Potable Water Treatment Facility (PWTF) General Permit to certain waters of the Commonwealth of Massachusetts and the State of New Hampshire. The General Permit MAG640000 applies to discharges in Massachusetts while the General Permit NHG640000 applies to discharges in New Hampshire. Collectively, in this fact sheet and in the general permit, the two permits are referred to, in the singular, as the Draft PWTF GP. Once finalized, the PWTF GP will replace the 2017 PWTF GP that was issued and became effective on March 6, 2017.

A number of facilities were never authorized under the 2017 PWTF GP and instead their coverage was administratively continued from older versions of the PWTF GP. Those facilities had elevated levels of aluminum in their discharges requiring site-specific effluent limitations that, at the time, EPA deemed were best implemented through individual permits. However, individual permits were never issued. For this reissuance, EPA is implementing site-specific effluent limitations and so those facilities covered under older versions of the PWTF GP are now eligible for permit coverage.

The Draft PWTF GP contains the following changes relative to the expired general permits.

1. Aluminum Limitations. EPA has conducted an analysis based on historic data to determine if aluminum discharges have the reasonable potential to cause or contribute to exceedances of water quality standards. As a result, some facilities covered under previous versions of the PWTF GP will now be subject to Total Aluminum effluent limitations. Further information can be found in Section 4.5 of this Fact Sheet and effluent limitations can be found in Appendix H of the Draft Permit.

2. Whole Effluent Toxicity (WET) Limitations. EPA has conducted an analysis based on historic data to determine if the effluent discharged from covered facilities demonstrates acute or chronic toxicity. As a result, some facilities covered under previous versions of the PWTF GP will now be subject to WET limitations. See Section 4.10 of this Fact Sheet and the effluent limitations in Appendix H of the Draft Permit.

3. WET Monitoring. Chronic WET testing has been removed from the Draft Permit for dischargers with dilution factors greater than 20:1. In addition, annual WET testing is now required to be conducted in the same calendar quarter every year, 3rd quarter (July – September). See Section 4.10 of this Fact Sheet.

4. Total Residual Chlorine Limitation Updates. Total Residual Chlorine (TRC) limits have been updated in some cases based on new dilution factors. See Section 4.4 of this Fact Sheet and the effluent limitations found in Appendix H of the Draft Permit.

5. Total Phosphorus Monitoring. Total phosphorus monitoring (effluent and receiving water) during the growing season is now required for all facilities that use and discharge phosphorus-containing chemicals to fresh waters and have a dilution factor less than

50:1. See Section 4.8 of this Fact Sheet.

6. PFAS Monitoring. Facilities are now required to report on their Notice of Intent (NOI) to discharge forms whether any per- and polyfluoroalkyl substances (PFAS) have been detected in the raw water, finished water, residuals, and/or discharged water from their facility. In addition, semi-annual PFAS monitoring is now required with an option to request elimination of the monitoring requirement after the first three sampling period. See Section 4.9 of this Fact Sheet.

7. Additional Ambient Monitoring. Quarterly monitoring of the receiving water for dissolved organic carbon, total hardness, and pH is now required to calculate site specific aluminum criteria. See Section 4.5 of this Fact Sheet.

8. Additional Special Conditions. New optional special conditions for providing a site-specific dilution factor (MA only) and requesting compliance schedules to meet effluent limitations have been added to the Draft Permit. See Part 5.0 of this Fact Sheet.

9. New or Increased Discharges. Existing facilities seeking flow limit increases and new facilities seeking permit coverage for the first time are no longer eligible for coverage under the Draft Permit. See Sections 2.2.2 and 4.1.

10. Permit Re-formatting. The Draft Permit has been substantially re-formatted from previous issuances such as: (1) combining similar conditions between the different states into shared effluent limitations table; and (2) re-ordering major parts of the permit. Various other non-substantive, formatting changes have been made throughout the document to increase permit clarity.

This Fact Sheet provides the principal facts and the significant legal and policy questions considered during the development of the draft General Permit.

1.1 Coverage of General Permits

Section 301(a) of the Clean Water Act (CWA) provides that the discharge of pollutants is unlawful except in accordance with a National Pollutant Discharge Elimination System (NPDES) permit unless such a discharge is otherwise authorized by the CWA. Although such permits are generally issued to individual discharges, EPA's regulations authorize the issuance of "General Permits" to categories of discharges. (See 40 CFR § 122.28). Violation of a condition of a General Permit constitutes a violation of the CWA and subjects the discharger to the penalties in Section 309 of the CWA.

The Director of an NPDES permit program is authorized to issue a General Permit if there are a number of point sources operating in a geographic area that:

- Involve the same or substantially similar types of operations;
- Discharge the same types of wastes;
- Require the same effluent limitations or operating conditions;

- Require the same or similar monitoring requirements; and
- In the opinion of the Director, are more appropriately controlled under a General Permit than under individual permits.

Based on these factors, EPA believes that discharges from potable water treatment facilities (PWTFs) warrant coverage under a General Permit. First, all point sources covered under this General Permit are located in the same geographic area (i.e., Massachusetts or New Hampshire). Second, these point sources are all generated by substantially similar operations, which involve the removal of solid particles and other pollutants from the source water and the disinfection of the clarified water prior to distribution for public consumption. Third, the wastewater generated from these point sources is similar in composition. Fourth, the same or similar effluent limitations and monitoring requirements are required for these point sources. Finally, these point sources represent multiple facilities that would not be efficiently regulated under individual permits and therefore are more appropriately controlled under a General Permit.

When reissued, the PWTF GP will enable eligible facilities to maintain compliance with the CWA and will provide an efficient method to extend environmental and regulatory controls to new permittees. Use of the PWTF GP will also provide timely responses to the permitting needs of the potable water treatment industry and will continue to help reduce the current backlog of NPDES permit applications.

1.2 Eligibility

Under this General Permit, owners and operators of PWTFs located in Massachusetts and New Hampshire that discharge wastewater from one or more of the treatment processes listed below are eligible to be covered by this permit, if the facility discharges less than or equal to 1.0 million gallons of effluent per day (MGD). However, on a case-by-case basis, EPA will consider approval for a facility that discharges a volume greater than the 1.0 MGD threshold.

The treatment processes covered include:

- Clarification,
- Coagulation,
- Media Filtration,
- Membrane filtration (not including reverse osmosis), and
- Disinfection.

Discharges from other potable drinking water treatment processes may be included if they are reported in the NOI and attain the effluent limits and other conditions of this permit. Such discharges may include, but are not limited to: those necessary to complete regular reoccurring maintenance or non-reoccurring maintenance, repair, testing or construction which assures efficient operation and/or prevents loss of life, personal injury, or severe property damage.

This General Permit is designed to cover discharges from potable water treatment facilities. The frequency of such discharges might vary. Discharges may occur on an emergency or infrequent basis (defined here as discharging less than one day per month or less than twelve days per year),

on an intermittent (e.g., batch) basis or on a continuous[1] basis. The Draft PWTF GP contains separate conditions for continuous/intermittent dischargers and emergency/infrequent dischargers. These conditions were developed based on historical effluent monitoring data and vary due to the magnitude and frequency of the discharges.

1.3 Limitations on Coverage

EPA has carried forward the categorical limitations on permit coverage from the 2017 PWTF GP. These are listed in Part I.C. of the Draft Permit. No categories have been added or removed; however, some changes have been made to the contact officials and appendices. EPA has found and continues to find that the categories of discharges excluded from coverage are not appropriately covered under the General Permit. Dischargers who are excluded from general permit coverage should contact the permitting official listed in Section 9.0 of this Fact Sheet to determine whether they are eligible for coverage under an individual permit.

2.0 Statutory and Regulatory Authority

Congress enacted the Federal Water Pollution Control Act, codified at 33 U.S.C. § 1251-1387 and commonly known as the Clean Water Act (CWA), "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into the waters of the United States from any point source, except as authorized by specific permitting sections of the CWA, one of which is § 402. *See* CWA §§ 301(a), 402(a). Section 402(a) established one of the CWA's principal permitting programs, the NPDES Permit Program. Under this section, EPA may "issue a permit for the discharge of any pollutant or combination of pollutants" in accordance with certain conditions. CWA § 402(a). NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. *See* CWA § 402(a)(1) and (2). The regulations governing EPA's NPDES permit program are generally found in 40 CFR §§ 122, 124, 125, and 136.

"Congress has vested in the Administrator [of EPA] broad discretion to establish conditions for NPDES permits" in order to achieve the statutory mandates of Section 301 and 402. *Arkansas v. Oklahoma,* 503 U.S. 91, 105 (1992). *See also* 40 CFR §§ 122.4(d), 122.44(d)(1), and 122.44(d)(5). CWA §§ 301 and 306 provide for two types of effluent limitations to be included in NPDES permits: "technology-based" effluent limitations (TBELs) and "water quality-based" effluent limitations (WQBELs). *See* CWA §§ 301, and 304(d); 40 CFR Parts 122, 125, 131.

2.1 Technology-Based Requirements

Technology-based treatment requirements represent the minimum level of control that must be imposed under CWA §§ 301(b) and 402 to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control

[1] According to 40 CFR § 122.2, a "continuous discharge" is defined as a "discharge" which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities.

technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. *See* 40 CFR § 125 Subpart A.

Subpart A of 40 CFR Part 125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under § 301(b) of the CWA, including the application of EPA promulgated Effluent Limitation Guidelines (ELGs) and case-by-case determinations of effluent limitations under CWA § 402(a)(1). EPA promulgates New Source Performance Standards (NSPS) under CWA § 306 and 40 CFR § 401.12. *See also* 40 CFR §§ 122.2 (definition of "new source") and 122.29.

In general, ELGs for non-POTW facilities must be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989. *See* 40 CFR § 125.3(a)(2). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by a NPDES permit. In the absence of published technology-based effluent guidelines, the permit writer is authorized under CWA § 402(a)(1)(B) to establish effluent limitations on a case-by-case basis using best professional judgment (BPJ).

2.2 Water Quality-Based Requirements

The CWA and federal regulations also require that permit effluent limits based on water quality considerations be established for point source discharges when such limitations are necessary to meet state or federal water quality standards that are applicable to the designated receiving water. This is necessary when less stringent TBELs would interfere with the attainment or maintenance of water quality criteria in the receiving water. *See* CWA § 301(b)(1)(C) and 40 CFR §§ 122.44(d)(1), 122.44(d)(5).

2.2.1 Water Quality Standards

The CWA requires that each state develop water quality standards (WQSs) for all water bodies within the State. *See* CWA § 303 and 40 CFR § 131.10-12. Generally, WQSs consist of three parts: 1) the designated use or uses assigned for a water body or a segment of a water body; 2) numeric or narrative water quality criteria sufficient to protect the assigned designated use(s); and 3) antidegradation requirements to ensure that once a use is attained it will not be degraded and to protect high quality and National resource waters. *See* CWA § 303(c)(2)(A) and 40 CFR § 131.12. The applicable State WQSs can be found in 314 of the Code of Massachusetts Regulations, Chapter 4 (314 CMR 4.00) and the New Hampshire Code of Administrative Rules, Surface Water Quality Standards, Chapter Env-Wq 1700, *et seq.* *See also generally*, N.H. Rev. Stat. Title L, Water Management and Protection, Chapters 485-A, Water Pollution and Waste Disposal.

As a matter of state law, state WQSs specify different water body classifications, each of which is associated with certain designated uses and numeric and narrative water quality criteria. When using chemical-specific numeric criteria to develop permit limitations, acute and chronic aquatic life criteria and human health criteria are used and expressed in terms of maximum allowable in-stream pollutant concentrations. In general, aquatic-life acute criteria are considered applicable

to daily time periods (maximum daily limit) and aquatic-life chronic criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific human health criteria are typically based on lifetime chronic exposure and, therefore, are typically applicable to average monthly limits.

When permit effluent limitation(s) are necessary to ensure that the receiving water meets narrative water quality criteria, the permitting authority must establish effluent limits in one of the following three ways: 1) based on a "calculated numeric criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use," 2) based on a "case-by-case basis" using CWA § 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or, 3) in certain circumstances, based on use of an indicator parameter. *See* 40 CFR § 122.44(d)(1)(vi)(A-C).

2.2.2 Antidegradation

Federal regulations found at 40 CFR § 131.12 require states to develop and adopt a statewide antidegradation policy that maintains and protects existing in-stream water uses and the level of water quality necessary to protect these existing uses. In addition, the antidegradation policy ensures maintenance of high quality waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water, unless the State finds that allowing degradation is necessary to accommodate important economic or social development in the area in which the waters are located.

Massachusetts' statewide antidegradation policy, entitled "Antidegradation Provisions" is found in the State's WQSs at 314 CMR 4.04. Massachusetts guidance for the implementation of this policy is in an associated document entitled "Implementation Procedure for the Anti-Degradation Provisions of the State Water Quality Standards," dated October 21, 2009. According to the policy, no lowering of water quality is allowed, except in accordance with the antidegradation policy, and all existing in-stream uses, and the level of water quality necessary to protect the existing uses of a receiving water body must be maintained and protected.

The New Hampshire Antidegradation Policy, found at Env-Wq 1708, applies to any new or increased activity that would lower water quality or affect existing or designated uses, including increased loadings to a water body from an existing activity. The antidegradation regulations focus on protecting high quality waters and maintaining water quality necessary to protect existing uses. Discharges that cause "significant degradation" are defined in NH WQS (Env-Wq 1708.09(a)) as those that use 20% or more of the remaining assimilative capacity for a water quality parameter in terms of either concentration or mass of pollutants or flow rate for water quantity. When NHDES determines that a proposed increase would cause a significant impact to existing water quality, the applicant must provide documentation to demonstrate that the lowering of water quality is necessary, that it will provide net economic or social benefit in the area in which the water body is located, and that the benefits of the activity outweigh the environmental impact caused by the reduction in water quality. *See* Env-Wq 1708.10(b).

This permit is being reissued with effluent limitations sufficiently stringent to satisfy the State's antidegradation requirements, including the protection of the existing uses of the receiving water. EPA has removed the eligibility of facilities with new or increased discharges from being covered under the PWTF GP.

2.2.3 Assessment and Listing of Waters and Total Maximum Daily Loads.

The objective of the CWA is to restore and maintain the chemical, physical and biological integrity of the Nation's waters. To meet this goal, the CWA requires states to develop information on the quality of their water resources and report this information to EPA, the U.S. Congress, and the public. To this end, EPA released guidance on November 19, 2001, for the preparation of an integrated "List of Waters" that could combine reporting elements of both § 305(b) and § 303(d) of the CWA. The integrated list format allows states to provide the status of all their assessed waters in one list. States choosing this option must list each water body or segment in one of the following five categories: 1) unimpaired and not threatened for all designated uses; 2) unimpaired waters for some uses and not assessed for others; 3) insufficient information to make assessments for any uses; 4) impaired or threatened for one or more uses but not requiring the calculation of a Total Maximum Daily Load (TMDL); and 5) impaired or threatened for one or more uses and requiring a TMDL.

A TMDL is a planning tool and potential starting point for restoration activities with the ultimate goal of attaining water quality standards. A TMDL essentially provides a pollution budget designed to restore the health of an impaired water body. A TMDL typically identifies the source(s) of the pollutant from point sources and non-point sources, determines the maximum load of the pollutant that the water body can tolerate while still attaining WQSs for the designated uses, and allocates that load among to the various sources, including point source discharges, subject to NPDES permits. *See* 40 CFR § 130.7.

For impaired waters where a TMDL has been developed for a particular pollutant and the TMDL includes a waste load allocation (WLA) for a NPDES permitted discharge, the effluent limitation in the permit must be "consistent with the assumptions and requirements of any available WLA". 40 CFR § 122.44(d)(1)(vii)(B).

2.2.4 Reasonable Potential

Pursuant to CWA § 301(b)(1)(C) and 40 CFR § 122.44(d)(1), NPDES permits must contain any requirements in addition to TBELs that are necessary to achieve water quality standards established under § 303 of the CWA. *See also* 33 U.S.C. § 1311(b)(1)(C). In addition, limitations "must control any pollutant or pollutant parameter (conventional, non-conventional, or toxic) which the permitting authority determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any water quality standard, including State narrative criteria for water quality." 40 CFR § 122.44(d)(1)(i). To determine if the discharge causes, or has the reasonable potential to cause, or contribute to an excursion above any WQS, EPA considers: 1) existing controls on point and non-point sources of pollution; 2) the variability of the pollutant or pollutant parameter in the effluent; 3) the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity); and 4)

where appropriate, the dilution of the effluent by the receiving water. *See* 40 CFR § 122.44(d)(1)(ii).

If the permitting authority determines that the discharge of a pollutant will cause, has the reasonable potential to cause, or contribute to an excursion above WQSs, the permit must contain WQBELs for that pollutant. *See* 40 CFR § 122.44(d)(1)(i).

2.2.5 State Certification

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate the State WQSs, the State waives, or is deemed to have waived, its right to certify. *See* 33 U.S.C. § 1341(a)(1). Regulations governing state certification are set forth in 40 CFR § 124.53 and § 124.55. EPA has requested permit certification by the State pursuant to 40 CFR § 124.53 and expects that the Draft PWTF GP will be certified. Comments regarding the certification should be directed to the applicable State contacts, listed on the Potable Water Treatment Facility webpage, https://www.epa.gov/npdes-permits/potable-water-treatment-facility-general-permit-pwtf-gp-massachusetts-new-hampshire

If the State believes that conditions more stringent than those contained in the Draft Permit are necessary to meet the requirements of either CWA §§ 208(e), 301, 302, 303, 306 and 307, or applicable requirements of State law, the State should include such conditions in its certification and, in each case, cite the CWA or State law provisions upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. EPA includes properly supported State certification conditions in the NPDES permit. The only exception to this is that the permit conditions/requirements regulating sewage sludge management and implementing CWA § 405(d) are not subject to the State certification requirements. Reviews and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made through EPA's permit appeal procedures of 40 CFR Part 124.

In addition, the State should provide a statement of the extent to which any condition of the Draft Permit can be made less stringent without violating the requirements of State law. Since the State's certification is provided prior to final permit issuance, any failure by the State to provide this statement waives the State's right to certify or object to any less stringent condition.

It should be noted that under CWA § 401, EPA's duty to defer to considerations of State law is intended to prevent EPA from relaxing any requirements, limitations or conditions imposed by State law. Therefore, "[a] State may not condition or deny a certification on the grounds that State law allows a less stringent permit condition." 40 CFR § 124.55(c). In such an instance, the regulation provides that, "The Regional Administrator shall disregard any such certification conditions or denials as waivers of certification." *Id.* EPA regulations pertaining to permit limitations based upon WQSs and State requirements are contained in 40 CFR §§ 122.4(d) and 122.44(d).

2.3 Effluent Flow Requirements

Generally, EPA uses effluent flow both to determine whether an NPDES permit needs certain effluent limitations and to calculate the limitations themselves. EPA practice is to use effluent flow as a reasonable and important worst-case condition in EPA's reasonable potential and WQBEL calculations to ensure compliance with WQSs under § 301(b)(1)(C). Should the effluent flow exceed the flow assumed in these calculations, the in-stream dilution would be reduced, and the calculated effluent limitations may not be sufficiently protective (i.e. might not meet WQSs). Further, pollutants that do not have the reasonable potential to exceed WQSs at the lower discharge flow may have reasonable potential at a higher flow due to the decreased dilution. In order to ensure that the assumptions underlying EPA's reasonable potential analyses and permit effluent limitation derivations remain sound for the duration of the permit, EPA may ensure the validity of its "worst-case" wastewater effluent flow assumptions through imposition of permit conditions for effluent flow.[2] In this regard, the effluent flow limitation is a component of WQBELs because the WQBELs are premised on a maximum level flow. The effluent flow limit is also necessary to ensure that other pollutants remain at levels that do not have a reasonable potential to exceed WQSs.

The limitation on effluent flow is within EPA's authority to condition a permit to carry out the objectives and satisfy the requirements of the CWA. *See* CWA §§ 402(a)(2) and 301(b)(1)(C); 40 CFR §§ 122.4(a) and (d), 122.43 and 122.44(d). A condition on the discharge designed to ensure the validity of EPA's WQBELs and reasonable potential calculations that account for "worst case" conditions is encompassed by the references to "condition" and "limitations" in CWA §§402 and 301 and the implementing regulations, as WQBELs are designed to assure compliance with applicable water quality regulations, including antidegradation requirements. Regulating the quantity of pollutants in the discharge through a restriction on the quantity of effluent is also consistent with the CWA.

In addition, as provided in Part VII.B.1 of this permit and 40 CFR § 122.41(e), the Permittee is required to properly operate and maintain all facilities and systems of treatment and control. Improper operation and maintenance may result in non-compliance with permit effluent limitations. Consequently, the effluent flow limit is a permit condition that relates to the Permittee's duty to mitigate (*i.e.*, minimize or prevent any discharge in violation of the permit that has a reasonable likelihood of adversely affecting human health or the environment) and to properly operate and maintain the treatment works. *See* 40 CFR §§ 122.41(d), (e).

2.4 Monitoring and Reporting Requirements

2.4.1 Monitoring Requirements

[2] EPA's regulations regarding "reasonable potential" require EPA to consider "where appropriate, the dilution of the effluent in the receiving water," *id* 40 CFR §122.44(d)(1)(ii). *Both* the effluent flow and receiving water flow may be considered when assessing reasonable potential. *In re Upper Blackstone Water Pollution Abatement Dist.,* 14 E.A.D. 577. 599 (EAB 2010). EPA guidance directs that this "reasonable potential: analysis be based on "worst-case" conditions. *See In re Washington Aquaduct Water Supply Sys. 11 E.A.D. 565, 584 (EAB 2004)*

Sections 308(a) and 402(a)(2) of the CWA and the implementing regulations at 40 CFR Parts 122, 124, 125, and 136 authorize EPA to include monitoring and reporting requirements in NPDES permits.

The monitoring requirements included in this permit have been established to yield data representative of the Facility's discharges in accordance with CWA §§ 308(a) and 402(a)(2), and consistent with 40 CFR §§ 122.41(j), 122.43(a), 122.44(i) and 122.48. The Draft Permit specifies routine sampling and analysis requirements to provide ongoing, representative information on the levels of regulated constituents in the discharges. The monitoring program is needed to enable EPA and the State to assess the characteristics of a facility's effluent, whether facility discharges are complying with permit limits, and whether different permit conditions may be necessary in the future to ensure compliance with technology-based and water quality-based standards under the CWA. EPA and/or the State may use the results of the chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to CWA § 304(a)(1), State water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including, but not limited to, those pollutants listed in Appendix D of 40 CFR Part 122.

NPDES permits require that the approved analytical procedures found in 40 CFR Part 136 be used for sampling and analysis unless other procedures are explicitly specified. Permits also include requirements necessary to comply with the *National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting Rule*.[3] This Rule requires that where EPA-approved methods exist, NPDES applicants must use sufficiently sensitive EPA-approved analytical methods when quantifying the presence of pollutants in a discharge. Further, the permitting authority must prescribe that only sufficiently sensitive EPA-approved methods be used for analyses of pollutants or pollutant parameters under the permit. The NPDES regulations at 40 CFR § 122.21(e)(3) (completeness), 40 CFR § 122.44(i)(1)(iv) (monitoring requirements) and/or as cross referenced at 40 CFR § 136.1(c) (applicability) indicate that an EPA-approved method is sufficiently sensitive where:

- The method minimum level[4] (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or

- In the case of permit applications, the ML is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or parameter in the discharge; or

- The method has the lowest ML of the analytical methods approved under 40 CFR Part

[3] Fed. Reg. 49,001 (Aug 19, 2014).

[4] The term "minimum level" refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL). Minimum levels may be obtained in several ways: They may be published in a method; they may be sample concentrations equivalent to the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a lab, by a factor. EPA is considering the following terms related to analytical method sensitivity to be synonymous: "quantitation limit," "reporting limit," "level of quantitation," and "minimum level." *See* Fed. Reg. 49,001 (Aug. 19, 2014).

136 or required under 40 CFR chapter I, subchapter N or O for the measured pollutant or pollutant parameter.

2.4.2 Reporting Requirements

The Draft Permit requires the Permittee to report monitoring results obtained during each calendar month to EPA and the State electronically using NetDMR. The Permittee must submit a Discharge Monitoring Report (DMR) for each calendar month no later than the 15th day of the month following the completed reporting period.

NetDMR is a national web-based tool enabling regulated CWA permittees to submit DMRs electronically via a secure internet application to EPA through the Environmental Information Exchange Network. NetDMR has eliminated the need for participants to mail in paper forms to EPA under 40 CFR §§ 122.41 and 403.12. NetDMR is accessible through EPA's Central Data Exchange at https://cdx.epa.gov/. Further information about NetDMR can be found on EPA's NetDMR support portal webpage.[5]

With the use of NetDMR, the Permittee is no longer required to submit hard copies of DMRs and reports to EPA and the State unless otherwise specified in the Draft Permit. In most cases, reports required under the permit shall be submitted to EPA as an electronic attachment through NetDMR. Certain exceptions are provided in the permit, such as for providing written notifications required under the Part VII Standard Conditions.

2.5 Standard Conditions

The standard conditions, included as Part VII of the Draft PWTF GP, are based on applicable regulations found in the Code of Federal Regulations. *See generally* 40 CFR Part 122.

2.6 Anti-backsliding

The CWA's anti-backsliding requirements prohibit a permit from being renewed, reissued or modified to include with less stringent limitations or conditions than those contained in a previous permit except in compliance with one of the specified exceptions to those requirements. *See* CWA §§ 402(o) and 303(d)(4) and 40 CFR § 122.44(l). Anti-backsliding provisions apply to effluent limits based on technology, water quality and/or state certification requirements.

All proposed limitations in the Draft PWTF GP are at least as stringent as limitations included in each facility's current individual permit unless specific conditions exist to justify relaxation in accordance with CWA § 402(o) or § 303(d)(4). Discussion of any less stringent limitations and corresponding exceptions to anti-backsliding provisions is provided in the sections that follow.

3.0 Available Dilution and Mixing Zones

[5] https://netdmr.zendesk.com/hc/en-us/articles/209616266-EPA-Region-1-NetDMR-Information

Water quality-based effluent limitations are established based, in part, on the available dilution derived from the flow in the receiving water at the point of discharge and the design flow of the facility from which the discharge occurs.

The dilution factor (DF) is calculated using the design flow (Qd) and the critical flow in the receiving water upstream of the discharge (Qs) as follows:

$$DF = (Qs + Qd) / Qd$$

Where:

Qs = upstream critical flow in million gallons per day (MGD)
Qd = design flow in MGD

For freshwater rivers and streams, both the Massachusetts and New Hampshire water quality regulations establish the critical flow condition at which water quality criteria are to be applied as the "7Q10 flow" in the receiving water (see 314 CMR 4.03(3)(a) and Env-Wq 1705.02(d)). The 7Q10 flow is the lowest mean flow for seven consecutive days, with a recurrence interval of once in ten years. The use of the 7Q10 flow allows for the calculation of the available dilution under critical flow (worst-case) conditions, which in turn results in the derivation of conservative water quality-based effluent limitations.

For Massachusetts waters that are regulated by dams or similar structures and for tidal waters in New Hampshire, the specified lowest flow condition at which aquatic life criteria must be applied is the flow that results in a dilution that is exceeded 99% of the time (see the Massachusetts water quality standards at 314 CMR 4.03(3)(b) and the New Hampshire water quality standards at Env-Wq 1705.02(b)).

For marine waters in Massachusetts, the critical hydrologic condition at which water quality must be met is established on a case-by-case basis. Existing uses must be protected, and the selected critical hydrologic condition shall not interfere with the attainment of designated uses (see 314 CMR 4.03(3)(c)).

The New Hampshire water quality standards require that 10% of the receiving water's assimilative capacity be held in reserve for future needs (Env-Wq 1705.01). Therefore, a factor of 0.9 is applied to the available dilution for establishing water quality-based effluent limitations in New Hampshire.

The water quality standards of both Massachusetts and New Hampshire provide for the application of mixing zones to establish the available dilution on a case-by-case basis when certain criteria are met (see the Massachusetts water quality standards at 314 CMR 4.03(2), the *Massachusetts Water Quality Standards Implementation Policy for Mixing Zones* (MassDEP, January 28, 1993) and the New Hampshire water quality regulations at Env-Wq 1707).

For this permit issuance, dilution factors were necessary to calculate water-quality based effluent limitations for Total Residual Chlorine (TRC), Total Aluminum, and acute toxicity (LC-50).

Updating dilution factors for discharges to rivers and streams is a streamlined process as updated 7Q10 flows are routinely calculated by MassDEP and NHDES. However, many of the facilities covered by this general permit discharge to lakes, ponds, or reservoirs. Under some hydrologic conditions and when representative stream gauge data is available, a 7Q10 flow can sometimes be calculated. However, for the majority of lakes/ponds/reservoirs, a 7Q10 is an inappropriate interpretation of State WQS's critical low flow condition due to the significant hydrologic differences in water retention and mixing dynamics.

For the 2017 PWTF GP, MassDEP developed an interpretation of its mixing zone regulations relevant to lakes and reservoirs. This was supported by the U.S. Geological Survey's (USGS) Scientific Investigations Report 2011-5136, which was prepared by USGS in cooperation with MassDEP and titled, "*Determination of Dilution Factors for Discharge of Aluminum-Containing Wastes by Public Water-Supply Treatment Facilities into Lakes and Reservoirs in Massachusetts*." The USGS study solved a mass-balance equation using flow and chemistry data from both the facility's effluent and the reservoir to calculate aluminum concentrations through time. Using these concentrations and reservoir specific factors (e.g., reservoir area, bathymetry, and settling velocity), the study calculated daily dilution factors using the equation: dilution factor equals effluent aluminum concentration divided by daily aluminum concentration. The lowest 7-day average flow was then calculated for each year. The yearly data for a given reservoir were then fit to a log Pearson type III Distribution and the 10^{th} percentile was selected. EPA interpreted this value, what the study refers to as the 7DF10, as analogous to a 7Q10 for streams and rivers.[6]

It should be noted that the 7DF10s from the USGS study only apply to analyses for aluminum as they incorporate aluminum specific considerations such as settling velocity and the dissolved organic carbon (DOC) concentration of the receiving water. For those facilities discharging chlorine to lakes, ponds, and reservoirs in Massachusetts, MassDEP carried forward their determination from the previous permit action that a 10:1 TRC-specific dilution factor is warranted.

The dilution factors discussed above were used in EPA's reasonable potential analysis and, where necessary, to calculate effluent limitations. While these two scenarios encompass the majority of the facilities covered under the 2017 PWTF GP, EPA and the State did not have sufficient information to calculate a dilution factor for some facilities. For those facilities, EPA made the conservative assumption that no dilution should be granted. However, the Draft PWTF GP does not prohibit facilities from calculating their own representative dilution factor. If the no dilution assumption is used to set an effluent limitation and, after permit issuance, a permittee develops a facility-specific dilution factor (via a study approved by EPA and the State), EPA will consider revising the effluent limitation. If such a revision would make an effluent limitation less stringent, the new information exception to backsliding would apply. See 40 CFR 122.44(l)(2)(i)(B)(1).

Appendix I to the Draft General Permit outlines EPA's procedure for conducting reasonable potential analyses and calculating effluent limitations using the dilution factors outlined above.

[6] See Table 4 in the USGS study. The 7DF10 at the current effluent concentration was used for this permit, not the highest 7DF10 that just meets the criteria.

Where no dilution is determined (or assumed), a value of 1 is used. The effluent limitations for specific facilities and pollutants are explained in the sections below and are specified in Appendix H of the Draft PWTF GP Permit.

4.0 Proposed Effluent Limitations and Conditions

The proposed effluent limitations and conditions derived under the CWA and State WQSs are described below. These proposed effluent limitations and conditions, the basis of which are discussed throughout this Fact Sheet, may be found in Part II of the Draft Permit.

In addition to the State and Federal regulations described in Section 2 above, EPA used the best available data to characterize each discharge and each receiving water and to identify the pollutants of concern and evaluate the need for effluent limitations. The best available data in most cases were data submitted by the Permittees (e.g., in notice of intent to discharge forms, monthly discharge monitoring reports [DMRs], annual reports, and/or whole effluent toxicity [WET] test reports) during the most recent 60-month "review period", in this case from October 2017 through September 2022. In some cases, other publicly available data were used if they were deemed the best available data. Occasionally, if no data during the review period for a particular pollutant were available then the best available data from before the review period were used. Specific examples will be cited in the applicable sections below.

Unless stated otherwise, the effluent limitations for emergency and infrequent dischargers will be the same as those for continuous and intermittent dischargers. The exceptions, explained below, are for total aluminum, total phosphorus, Whole Effluent Toxicity, and PFAS. Monitoring frequency for emergency and infrequent dischargers will be once per discharge event.

4.1 Effluent Flow

A daily maximum flow limit of up to 1.0 million gallons per day (MGD) applies to all dischargers covered by this General Permit. The Draft Permit no longer allows flow limits above 1.0 MGD. The operator for each facility shall not exceed the design flow capacity of the treatment system, determined by the component of the treatment train with the most restricted flow, and as reported in the Notice of Intent, up to a maximum of 1.0 MGD. Nonetheless, EPA believes that PWTFs will rarely exceed this discharge flow. The PWTF GP is intended for facilities with smaller wastewater discharges that are less likely to impact surface water quality, especially in consideration of the effluent limits set forth in the permit. If there is a case where this maximum flow is consistently exceeded, an individual permit may be required.

4.2 Total Suspended Solids (TSS)

Solids are the most common pollutant in water treatment plant residuals and could include inorganic (e.g., silt, sand, clay, and insoluble hydrated metal oxides) and organic matter (e.g., flocculated colloids and compounds that contribute to color). Solids residuals primarily come from the source water, but the addition of treatment chemicals can add to the measured value (e.g., metals present in coagulants). Suspended solids may settle to form bottom deposits in the receiving water, potentially causing benthic smothering. Suspended solids also increase turbidity

in receiving waters and reduce light penetration through the water column. This can limit the growth of rooted aquatic vegetation that serves as a critical habitat for fish and other aquatic organisms and/or can clog fish gills, resulting in an increase in susceptibility to infection or asphyxiation. Suspended solids also provide a medium for the transport of other sorbed pollutants, including nutrients, pathogens, and metals, which may accumulate in settled deposits that may have a long-term impact on the water column through cycles of resuspension.

The Draft PWTF GP contains monthly average and maximum daily Total Suspended Solids (TSS) limitations of 30 mg/l and 50 mg/l, respectively, as continued from the Expired PWTF GP at a weekly monitoring frequency. This is in accordance with anti-backsliding requirements found in 40 CFR § 122.44(1). These limitations were established using best professional judgment (BPJ) pursuant to § 402(a)(1) of the CWA. The limits are based upon the TSS concentrations estimated to be achievable by using sedimentation basins/tanks/ponds to treat filter backwash and other wastewaters from PWTFs. They are consistent with the TSS limits found in other PWTF general permits throughout the nation, as highlighted in EPA's Drinking Water Treatment Plant Residuals Management Technical Report.[7] The limits are also sufficiently stringent to achieve the water quality standards of Massachusetts and New Hampshire. Coverage under the PWTF GP will not be granted for any discharges for which EPA or the applicable State believes a more stringent water quality-based TSS limit is needed.

4.3 pH

The effluent limits for pH in the Draft Permit are established to be consistent with water quality standards in Massachusetts, namely 314 CMR 4.05(3)(a)(3), 4.05(3)(b)(3), 4.05(4)(a)(3) and 4.05(4)(b)(3), and water quality standards in New Hampshire (EnvWq 1703.18). Additionally, these limits are continued from the Expired PWTF GP. Based on these water quality standards, the Draft Permit contains the following limits for the indicated waterbody classifications.

Massachusetts Class A and B: 6.5 – 8.3 standard units (S.U.)
Massachusetts Class SA and SB: 6.5 – 8.5 S.U.
New Hampshire Class B: 6.5 – 8.0 S.U.

In addition, for New Hampshire facilities, the Draft Permit includes a state certification condition allowing for alternative effluent limitations contingent on the results of a pH study. For further information on this condition, reach out to the NHDES contacts provided on the permit webpage.

4.4 Total Residual Chlorine (TRC)

Chlorine and chlorine compounds are toxic to aquatic life. Free chlorine is directly toxic to aquatic organisms and can react with naturally occurring organic compounds in receiving waters to form toxic compounds such as trihalomethane. Potable water sources are typically chlorinated to minimize or eliminate pathogens. 40 CFR § 141.72(a)(3) stipulates that a public water system's residual disinfectant concentration in the water entering the distribution system cannot be less than 0.2 mg/L for more than four hours.

[7] Drinking Water Treatment Plant Residuals Management Technical Report: Summary of Residuals Generation, Treatment, and Disposal at Large Community Water Systems. EPA 820R11003, December 2011; 377 pp.

The Draft Permit contains effluent limits for total residual chlorine (TRC), continued from the expired permit in accordance with anti-backsliding requirements found in 40 CFR § 122.44(1). The TRC limits apply to facilities whose discharges contain water which has been previously chlorinated, or which contain residual chlorine. Since it is common for the final treated water containing residual disinfectant to be used for filter backwashing, the wastewater discharges from PWTFs have the potential to exceed water quality standards for TRC.

The TRC permit limits are based on the instream chlorine criteria defined in *National Recommended Water Quality Criteria: 2002*, EPA 822R-02-047 (November 2002), as stipulated in Massachusetts WQS at 314 CMR 4.06(6) – Table 29 and in the New Hampshire Code of Administrative Rules at Env-Wq 1703.21 and Table 1703.1. The freshwater instream criteria for chlorine are 11 µg/L (chronic) and 19 µg/L (acute). For marine waters criteria for chlorine are 7.5 µg/L (chronic) and 13 µg/L (acute). Because the upstream chlorine is assumed to be zero in this case, the water quality-based chlorine limits are calculated as the criteria times the dilution factor, as follows:

Chronic criteria * dilution factor = average monthly limit

Acute criteria * dilution factor = maximum daily limit

The Massachusetts Water Quality Standards' *Implementation Policy for the Control of Toxic Pollutants in Surface Waters*, dated February 23, 1990, states that waters shall be protected from unnecessary discharges of excess chlorine. It states that the maximum effluent concentration of chlorine shall not exceed 1.0 mg/L TRC. In both Massachusetts and New Hampshire, the TRC limits established for discharges with high dilution factors will be capped at 1.0 mg/L based on this policy and consistent with the 2017 PWTF GP. EPA believes that this upper TRC effluent limit will adequately protect aquatic organisms from toxic amounts of chlorine.

As discussed in Section 3.0 above, dilution factors have been updated where new information is available. Specifically, 7Q10 flows for discharges to rivers and streams. For discharges to lakes, ponds, and reservoirs where 7Q10 flows are inapplicable, EPA has either carried forward the previous dilution determination or determined that no dilution should be granted. See Part IV.C of the Draft General Permit for a condition allowing Massachusetts permittees to supply their own dilution factor study for EPA and DEP approval. EPA has calculated the expected effluent limitations for TRC based on data available at the time of this writing. See Appendix H for facility-specific effluent limits. If new information submitted in the NOI indicate that a more stringent effluent limitation is necessary to protect water quality standards, these limits may be updated.

4.5 Aluminum

Aluminum-based coagulants, such as aluminum sulfate (alum) and polyaluminum chloride (PAC), are commonly used in the coagulation and sedimentation water treatment processes to remove solid particles from raw water sources at potable water treatment facilities. Filter backwashing often follows these treatment stages leading to a risk of elevated levels of

aluminum in the discharges covered by this permit. Aluminum is also commonly present in the source waters for these treatment facilities; produced from the weathering of rocks and minerals of Earth's crust.

At elevated levels, aluminum can be toxic in the aquatic environment. High aluminum concentrations can disrupt an organisms' ability to regulate ion concentrations leading to effects on respiratory efficiency. For fish, aluminum accumulation on gills results in deleterious respiratory effects. Fish are generally more sensitive than aquatic plants to aluminum. Aluminum toxicity increases with its bioavailability, which depends on water chemistry parameters including pH, total hardness, and dissolved organic carbon (DOC). As a result, water quality criteria for aluminum can vary significantly.

EPA has published aquatic life criteria for aluminum in freshwater[8] and has not published aquatic life criteria for aluminum in marine waters. The freshwater criteria allow stakeholders to develop site-specific values accounting for local water chemistry through an aluminum criteria calculator tool. Massachusetts has adopted these criteria in their WQS at 314 CMR 4.06 – Table 29. Massachusetts has also calculated watershed-default aluminum criteria based on the aluminum criteria calculator and watershed water chemistry (see Appendix A in 314 CMR 4.06 – Table 29).

New Hampshire has not adopted EPA's current aluminum criteria. Instead, NH WQS at Env-WQ 1703.21 stipulate freshwater aquatic life criteria based on EPA's 1988 national recommended ambient water quality criteria. Specifically, a freshwater acute criterion of 750 µg/L and a chronic criterion of 87 µg/L. In Massachusetts, aluminum criteria are expressed as total recoverable aluminum. In New Hampshire, criteria are applied in terms of acid-soluble aluminum (see Env-WQ Table 1703-1, Note S). However, without site-specific data showing the fraction of downstream aluminum in the acid-soluble form, EPA assumes that the ratio of acid soluble to recoverable aluminum is 1:1.

Appendix I of the Draft General Permit presents EPA's methodology for conducting reasonable potential analyses (RPA) and water quality-based limit calculations. In short, EPA uses a mass-balance equation to determine whether the effluent has the reasonable potential to cause or contribute to an exceedance above the in-stream water quality criteria for aluminum. For a large universe of permittees such as the one covered by the PWTF GP, comprehensive datasets that were consistent in the number of samples and the sampling period were not always available for all facilities. In part, this was because facilities were authorized for coverage under the 2017 PWTF GP at different times and also facilities discharged at different frequencies (e.g., infrequent vs. continuous discharges). In addition, dilution factors were not always readily available and calculation or re-calculation of them had to be prioritized based on available staff resources and the facility's effluent data (e.g.., higher priority was given to those facilities discharging concentrations above criteria). Given these data gaps and inconsistencies, EPA made the following conclusions.

EPA's analysis found that facilities discharging on an infrequent or emergency basis discharged aluminum at concentrations consistently below water quality criteria. In addition, these facilities

[8] Available at, https://www.epa.gov/wqc/aquatic-life-criteria-aluminum.

discharge at low frequency and make up a small portion of the annual downstream flow. Given the infrequent nature of these discharges and the aluminum data reported by the facilities that did discharge, EPA has made a determination that these facilities do not currently have reasonable potential to cause or contribute to excursions above water quality standards and these facilities will not be subject to total aluminum effluent limitations. However, monitoring of their discharges for aluminum continues to be required for future reasonable potential assessments given the toxic effects aluminum can have on receiving water biota.

For continuous and intermittent discharges, EPA analysis began by identifying facilities that have not discharged aluminum at concentrations above both the chronic and the acute criteria. Given the consistently low aluminum concentrations in the discharges, EPA determined that these facilities do not have reasonable potential to cause or contribute to excursions above water quality standards. As a result, the Draft Permit does not include total aluminum effluent limitations. However, monthly total aluminum monitoring continues to be required for future assessments in case facility operations or discharge conditions change.

The remaining facilities discharged aluminum at concentrations above water quality criteria. Using the procedures in Appendix I and the data available at the time of this drafting, EPA determined that some of these facilities have reasonable potential to cause or contribute to excursions above water quality criteria for aluminum. As a result, EPA has calculated aluminum WQBELs for those facilities. See Appendix H for facility-specific effluent limits. If new data becomes available during the NOI approval process, including a dilution study or new ambient data, these limitations may be recalculated (following the procedures in Appendix I) so long as the conditions of the facility's authorization will ensure attainment of water quality standards.

During future permit issuances, EPA plans to develop site specific aluminum criteria for all facilities discharging aluminum based on EPA's aluminum criteria calculator. EPA's 2018 *National Recommended Water Quality Criteria* for aluminum are calculated based on water chemistry parameters that include dissolved organic carbon (DOC), hardness and pH. Therefore, the Draft Permit includes these monitoring requirements for continuous and intermittent dischargers.

4.6 Iron

Iron salts are the active ingredients in some coagulants, which can be used to remove solid particles from raw water sources at PWTFs. The 2017 PWTF GP required monthly monitoring for those facilities that use iron-based coagulants to assess whether the metal is present at levels of concern in the discharges from those facilities. In part, the requirement was meant to ensure that a facility does not simply replace one coagulant that contains a pollutant of concern (i.e., aluminum-based coagulant) for another coagulant that is a potential pollutant of concern (i.e., iron-based coagulant). Although iron is an essential trace element required by both plants and animals, the ferrous (Fe+2) and the ferric (Fe+3) forms of the metal are the primary forms of concern in the aquatic environment. EPA has published a chronic aquatic life criterion of 1000 µg/L for iron.[9]

[9] See EPA's *Quality Criteria for Water 1986 ("Gold Book")*. EPA 440/5-86-001, May 1986; 395 pp.

Only two facilities authorized under the 2017 PWTF GP reported using an iron-based coagulant. One facility was an emergency discharge facility (MAG640033) and did not discharge over the last five years. For the other facility (MAG640049), EPA conducted a reasonable potential analysis as outlined in Appendix I to assess whether the discharge had reasonable potential to cause or contribute to an exceedance of the chronic aquatic life criteria. EPA finds that there is no reasonable potential for discharges of iron from this facility to exceed the water quality criteria. However, given that discharge concentrations occasionally did exceed the water quality criteria, EPA finds that iron remains a pollutant of concern. As a result, the Draft PWTF GP maintains the iron monitoring requirement for facilities that use an iron-based coagulant or treat for iron at a monitoring frequency of monthly.

4.7 Arsenic

Arsenic, a toxicant, can be present at high levels in raw source water, particularly for groundwater sources. Potable Water Treatment facilities that will treat for arsenic have the potential to discharge elevated concentrations in their backwash discharges covered under this permit. As a result, previous versions of the PWTF GP included monthly arsenic monitoring requirements for facilities who provide treatment to remove arsenic from raw source water.

EPA analyzed the data for the three dischargers who reported treating for arsenic and were required to monitor for total arsenic in their discharge. One of the dischargers (MAG640071) has not discharged over the last five years. The other two dischargers (MAG640004 and MAG640072) reported arsenic concentrations from less than 4 to 40 µg/L. For context, EPA's National Recommended Water Quality Criteria for acute and chronic arsenic in freshwater are 340 µg/L and 150 µg/L, respectively. As a result, EPA finds that current arsenic discharges do not have reasonable potential to cause or contribute to exceedances of water quality criteria. Given the significant toxicity of arsenic and the potential for other facilities covered under this general permit to begin treating for it, the monitoring requirement remains in place at the same monthly monitoring frequency.

4.8 Phosphorus

While phosphorus is an essential nutrient for the growth of aquatic plants, it can stimulate rapid plant growth in freshwater ecosystems when it is present in high quantities. The excessive growth of aquatic plants and algae within freshwater systems negatively impacts water quality and can interfere with the attainment of designated uses by: 1) increasing oxygen demand within the water body to support an increase in both plant respiration and the biological breakdown of dead organic (plant) matter; 2) causing an unpleasant appearance and odor; 3) interfering with navigation and recreation; 4) reducing water clarity; 5) reducing the quality and availability of suitable habitat for aquatic life; 6) producing toxic cyanobacteria during certain algal blooms. Cultural (or accelerated) eutrophication is the term used to describe dense and excessive plant growth in a water body that results from nutrients entering the system as a result of human activities.

As stated in the Drinking Water Treatment Plant Residuals Management Technical Report, phosphorus-containing chemicals can be used by PWTFs to condition the finished water for

scale and corrosion control. These chemicals can then make it back to the discharge when finished water is used for filter backwashing. The 2017 PWTF GP included a monitoring requirement for those facilities that use phosphorus-containing chemicals as part of their treatment process and discharge to waterbodies impaired for phosphorus. Only one facility reported doing so on their NOI (MAG640025); however, the receiving water for this facility is not listed as impaired for total phosphorus or a related impairment. EPA reviewed the states' CWA 303(d) list of impaired waters for all of the facilities that indicated that they use phosphorus (24 facilities in Massachusetts and 1 facility in New Hampshire). Only one facility discharges to a receiving waterbody impaired for total phosphorus, the Lowell Regional Water Utility facility (MAG64005). This facility discharges to the Merrimack River, Massachusetts waterbody segment (MA84A-02) that has a total phosphorus impairment. Since EPA does not have any total phosphorus monitoring data from this facility, data collection will be required as part of coverage under the new GP.

The Draft PWTF GP requires all facilities that (1) use phosphorus-containing chemicals, (2) discharge to fresh waterbodies, and (3) have a dilution factor less than 50:1, monitor their effluent and the receiving water for total phosphorus. Effluent monitoring is required at a monthly frequency during the growing season of April 1st to October 31st. Receiving water monitoring is required at a monthly frequency during the growing season every other year. This data will be evaluated to determine if a facility should be subject to more stringent requirements or numeric limits for phosphorus in the next reissuance of the permit. In addition, those facilities that do use phosphorus and discharge to a waterbody impaired for phosphorus or a related pollutant will be required to evaluate potential measures that will reduce and/or eliminate the discharge of phosphorus into the receiving water (i.e., evaluation of other chemicals which could reduce or eliminate the use of phosphorus-containing chemicals while still maintaining drinking water standards).

4.9 Per- and polyfluoroalkyl substances (PFAS)

As explained at https://www.epa.gov/pfas, PFAS are a group of synthetic chemicals that have been in use since the 1940s. PFAS are found in a wide array of consumer and industrial products. PFAS manufacturing and processing facilities, facilities using PFAS in production of other products, airports, and military installations can be contributors of PFAS releases into the air, soil, and water. Due to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS. Exposure to some PFAS above certain levels may increase risk of adverse health effects.[10] EPA is collecting information to evaluate the potential impacts that discharges of PFAS from wastewater treatment plants may have on downstream drinking water, recreational and aquatic life uses.

Background Information for Massachusetts

[10] EPA, *EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan,* EPA 823R18004, February 2019. Available at: https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf

On October 20, 2020, MassDEP published final regulations establishing a drinking water standard, or a Maximum Contaminant Level (MCL) of 20 parts per trillion (ppt) for the sum of the following six PFAS. *See* 310 CMR 22.00.

- Perfluorohexanesulfonic acid (PFHxS)
- Perfluoroheptanoic acid (PFHpA)
- Perfluorononanoic acid (PFNA)
- Perfluorooctanesulfonic acid (PFOS)
- Perfluorooctanoic acid (PFOA)
- Perfluorodecanoic acid (PFDA)

Although the Massachusetts water quality standards do not include numeric criteria for PFAS, the Massachusetts narrative criterion for toxic substances at 314 CMR 4.05(5)(e) states:

> All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.

The narrative criterion is further elaborated at 314 CMR 4.05(5)(e)2 which states:

> Human Health Risk Levels. Where EPA has not set human health risk levels for a toxic pollutant, the human health-based regulation of the toxic pollutant shall be in accordance with guidance issued by the Department of Environmental Protection's Office of Research and Standards. The Department's goal is to prevent all adverse health effects which may result from the ingestion, inhalation or dermal absorption of toxins attributable to waters during their reasonable use as designated in 314 CMR 4.00.

Background Information for New Hampshire

On September 30, 2019, NH DES adopted Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLGs) for drinking water at Env-DW 705.06 and Ambient Groundwater Quality Standards (AGQS) at Env-Or 603 for the following PFAS:

	MCLs/AGQs	MCLGs
Perfluorohexanesulfonic acid (PFHxS)	18 ng/L	0
Perfluorononanoic acid (PFNA)	11 ng/L	0
Perfluorooctanesulfonic acid (PFOS)	15 ng/L	0
Perfluorooctanoic acid (PFOA)	12 ng/L	0

The September 2019 PFAS regulations were challenged in state court and are currently enjoined pending resolution of the litigation. On July 23, 2020, the New Hampshire legislature enacted legislation establishing MCLs and AGQSs for these PFAS in State statute at the identical levels as the challenged regulations. The statutory MCLs and AGQSs became effective on July 23, 2020.

Monitoring Requirement

As alluded to above, both Massachusetts and New Hampshire have found that controls on PFAS in drinking water are necessary. In anticipation of greater numbers of potable water treatment facilities treating their source water for PFAS, EPA is concerned about the potential for these facilities to concentrate and discharge PFAS in their residuals. However, there is still incomplete information surrounding the prevalence and magnitude of PFAS in drinking water treatment residuals.

The Draft Permit requires all permittees to report on their NOI whether any PFAS have been detected in their source water, raw water, finished water, residuals, and/or discharged water and to summarize the concentrations and constituents found. In addition, the Draft Permit requires that all continuous and intermittent dischargers conduct PFAS monitoring during the first three semi-annual periods. This monitoring includes analysis of 40 PFAS analytes and adsorbable organic fluorine. After the first three rounds of sampling, the Permittee may request an elimination of the monitoring requirement. EPA and the State will make a site-specific determination if PFAS monitoring shall continue (at a semi-annual frequency) or be halted for the remainder of the permit term. That determination will be based on:

1) Whether the samples had any detections of any of the PFAS analytes.
2) If no analytes were detected, what the detection levels used by the labs were.
3) Whether the discharge is directly to or upstream of drinking water treatment sources.
4) Whether the discharge is from treated groundwater, where the prevalence of PFAS has been shown to be more likely.

The purpose of these monitoring and reporting requirements is to better understand potential discharges of PFAS from potable water treatment facilities. In particular, the buildup of PFAS in drinking water reservoirs is being prioritized for monitoring purposes. While it has been found that certain PFAS (e.g., PFOA and PFOS) have impacts on aquatic life, draft criteria proposed by EPA are generally orders of magnitude higher than concentrations seen in drinking water.[11] This preliminary data collection step will help characterize concentrations of PFAS in water treatment residuals and inform future permitting decisions, including the potential development of water quality-based effluent limits. EPA is authorized to require this monitoring and reporting by CWA § 308(a), which states:

> "SEC. 308. (a) Whenever required to carry out the objective of this Act, including but not limited to (1) developing or assisting in the development of any effluent limitation, or other limitation, prohibition, or effluent standard, pretreatment standard, or standard of performance under this Act; (2) determining whether any person is in violation of any such effluent limitation, or other limitation, prohibition or effluent standard, pretreatment standard, or standard of performance; (3) any requirement established under this section; or (4) carrying out sections 305, 311, 402, 404 (relating to State permit programs), 405, and 504 of this Act—

[11] See EPA's Draft 2022 Aquatic Life Ambient Water Quality Criteria for Perfluorooctanoic acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS). April, 2022. Fact Sheet available at: https://www.epa.gov/system/files/documents/2022-04/pfoa-pfos-draft-factsheet-2022.pdf.

> (A) the Administrator shall require the owner or operator of any point source to (i) establish and maintain such records, (ii) make such reports, (iii) install, use, and maintain such monitoring equipment or methods (including where appropriate, biological monitoring methods), (iv) sample such effluents (in accordance with such methods, at such locations, at such intervals, and in such manner as the Administrator shall prescribe), and (v) provide such other information as he may reasonably require;".

On April 28, 2022, EPA issued a memorandum addressing PFAS discharges in EPA-issued NPDES Permits.[12] For industrial direct dischargers such as those facilities covered under the PWTF GP, in the absence of a final 40 CFR § 136 method, use CWA wastewater draft analytical method 1633. (See 40 CFR § 122.21(e)(3)(ii) and 40 CFR § 122.44(i)(1)(iv)(B)). Monitoring should include each of the 40 PFAS parameters detectable by draft method 1633 (see Draft Permit Appendix J for list of PFAS parameters) and the monitoring frequency is quarterly. All PFAS results must be reported on DMRs (see 40 CFR § 122.41)(l)(4)(i)).

EPA expects a multi-lab validated method will be available by the end of 2022. This approach is consistent with 40 CFR § 122.44(i)(1)(iv)(B) which states that in the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR Part 136 or methods are not otherwise required under 40 CFR chapter I, subchapter N or O, monitoring shall be conducted according to a test procedure specified in the permit for such pollutants or pollutant parameters.

EPA has also just recent published draft method 1621 to screen for organofluorines in wastewater. Organofluorines (molecules with a carbon-fluorine bond) are rarely naturally occuring and the most common source of organofluorines are PFAS and non-PFAS fluorinated compounds such as pesticides and pharmaceuticals. The Permittee shall monitor Adsorbable Organic Fluorine using method 1621 twice per year (or three quarters per permit term) concurrently with other PFAS monitoring. This requirement also takes effect the first full calendar quarter following the Facility's authorization letter.

4.10 Whole Effluent Toxicity

EPA and the States are authorized under §§402(a)(2) and 308(a) of the CWA to require toxicity testing. §308 specifically describes biological monitoring methods as techniques that may be used to carry out objectives of the Act. In addition, under CWA § 301(b)(1)(C), discharges are subject to effluent limitations based on WQSs. Under CWA §§ 301, 303 and 402, EPA and the States may establish toxicity-based limitations to implement the narrative water quality criteria calling for "no toxics in toxic amounts". *See also* 40 CFR § 122.44(d)(1). The Massachusetts WQSs at 314 CMR 4.05(5)(e) state, "All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife." New

[12] Radhika Fox, Assistant Administrator, EPA to Water Division Directors, EPA Regions 1-10, April 28, 2022, Subject: "Addressing PFAS Discharges in EPA-Issued NPDES Permits and Expectations Where EPA is the Pretreatment Control Authority." Available at: https://www.epa.gov/system/files/documents/2022-04/npdes_pfas-memo.pdf

Hampshire statute and regulations state that, "all surface waters shall be free from toxic substances or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans, or aquatic life...." (N.H. RSA 485-A:8, VI and the N.H. Code of Administrative Rules, PART Env-Wq 1703.21(a)(1)).

WET testing evaluates the toxicity of all constituents in a complex effluent, including pollutant interactions, thus rendering an aggregate toxicity assessment of an effluent. WET testing implicitly addresses the "additivity" (sum of), "antagonism" (less than the sum of) and "synergism" (greater than the sum of) effects of combinations of pollutants or discharges. WET testing further provides assessment for the bioavailability of pollutants where chemical-specific approaches are limited. Previously unknown toxic pollutants present in an effluent can also be discovered and addressed, as can the presence of pollutants which have accumulated in the receiving water.

The federal NPDES regulations at 40 CFR §122.44(d)(1)(v) require WET limitations when a discharge causes or has a reasonable potential to cause or contribute to an excursion above the Stat's narrative criterion for toxicity. The 2017 PWTF GP required annual acute and chronic WET testing for continuous and intermittent discharges. EPA reviewed the WET data collected for those facilities subject to testing requirements. Given the annual monitoring frequency, the rotating seasonal requirement, and the staggered facility authorizations, facilities conducted anywhere from no WET tests to four WET tests since the effective date of the 2017 PWTF GP. The majority of the WET tests indicated no toxicity, i.e., LC50 and C-NOEC values of 100%. However, toxicity was observed at 14 facilities in one or more WET tests with LC50s and C-NOECs as low as 0%.

For those dischargers that detected acute toxicity in their discharges, EPA conducted reasonable potential analyses following the procedures in Appendix I and the WET data available at the time of this drafting. EPA determined that some facilities have reasonable potential to cause or contribute to excursions above water quality criteria for acute toxicity. As a result, EPA has calculated LC50 WQBELs for these facilities. See Appendix H for facility-specific effluent limits and the *Massachusetts Implementation Policy for the Control of Toxic Pollutants in Surface Waters*[13] for an explanation of how LC50 limitations are derived. If new data becomes available during the NOI approval process, including a dilution study or new ambient data, these limitations may be modified so long as the conditions of the facility's authorization will ensure attainment of water quality standards.

To address chronic toxicity, EPA followed WET guidance in both states that indicates different tiers of limitations and monitoring based on facility dilution factors. Massachusetts and New Hampshire guidance recommends that facilities with dilution factors less than 20 should be required to monitor for chronic toxicity and discharges with dilution factors less than 10 should have C-NOEC limitations, calculated as the reciprocal of their dilution factors. EPA followed this approach in the Draft Permit. See Appendix H for facility-specific effluent limits for chronic WET.

[13] Available at: https://www.epa.gov/sites/default/files/2014-12/documents/mawqs-mixing-zone.pdf.

Toxicity testing must be performed in accordance with the updated EPA Region 1 WET test procedures and protocols specified in Appendix A, B, C, and D of the Draft Permit. Permittees that discharge into freshwater shall test the daphnid, *Ceriodaphnia dubia* and permittees discharging to saltwater shall test the Inland Silverside, *Menidia beryllina*. The Draft Permit now requires the annual WET test to be sampled during the 3rd calendar quarter every year (July – September), instead of rotating calendar quarters. This change is meant to align with peak water usage and provide a consistent schedule for permittees to ensure monitoring is conducted.

4.10.1 Ammonia Analysis from WET Testing

Disinfection at water treatment plants may lead to the discharge of residual disinfectants that contain chloramines, formed primarily by chlorine and ammonia. At times chemical treatment applied prior to the effluent being discharged can cause the chloramines to be resuspended in solution as ammonia and chlorides. Ammonia is toxic to aquatic life. The 2017 PWTF GP included ammonia monitoring requirements indirectly through annual Whole Effluent Toxicity (WET) testing for continuous/intermittent dischargers. For this permit issuance, EPA aggregated the ammonia data to determine if it is a pollutant of concern requiring further characterization.

Ammonia data from 79 WET tests was analyzed from the facilities required to do WET testing. Ammonia concentrations ranged from below laboratory minimum levels (e.g., <0.05 mg/L) to 3.6 mg/L. One facility had three ammonia WET test results of 1.5, 2.8 and 3.6 mg/L, by far the highest values. Given the paucity of data for any one facility (i.e., less than five samples collected per facility), EPA conducted a screening assessment of the WET data by aggregating the data together. Using the same lognormal distribution referenced in the reasonable potential analysis procedure in Appendix I, EPA calculated a 95th percentile of the effluent ammonia concentrations of 0.54 mg/L. Given the low concentration of this projection relative to the typical range of ammonia criteria, EPA finds that there is unlikely to be reasonable potential for ammonia discharged from these potable water treatment facilities to cause or contribute to a violation of water quality standards. No additional ammonia monitoring requirements have been added to the Draft PWTF GP. However, total ammonia continues to be required as part of WET testing and future permit issuances will reassess the conclusions of this analysis.

5.0 Special Conditions

5.1 Best Management Practices

The Draft Permit contains several nonnumeric technology-based effluent limitations in addition to numeric effluent limitations. It retains requirements for the permittee to develop, implement, and maintain a Best Management Practices (BMP) Plan for wastewater discharges from the PWTF and to document how both the nonnumeric technology-based and numeric effluent limitations are being met through the selection, design, installation, and implementation of control measures (including BMPs). The purpose of the BMP Plan is to prevent or minimize the concentration of pollutants (biological, chemical and physical) in the wastewater discharged to surface waters. The BMP Plan will ensure that not only is the drinking water produced by PWTFs safe for human consumption, but also that the wastewater produced by PWTFs is protective of the quality of the receiving water.

The BMP Plan also includes specific language requiring the implementation of an aluminum minimization program (if a PWTF uses aluminum). Part IV.A.5.j. of the General Permit highlight these requirements. At a minimum, this program must include the procedures used for the removal of solids, including sludge, and the procedures used to minimize the discharge of aluminum to surface waters. Additional best management practices include an evaluation of using nonaluminum based coagulants, a description of alternate procedures or improvements to increase the efficiency of solids and/or aluminum removal, and a consideration of the design standards used for devices that treat residuals. As an example, the design standards for lagoons, which are a widely used control measure for treatment of residuals at water treatment facilities, typically include:[14]

- A location free from flooding;
- Where necessary, dikes, reflecting gutters, or other means of diverting surface water so that it does not flow into the lagoon;
- A minimum usable depth of five feet;
- Adequate freeboard of at least two feet;
- An adjustable decanting device;
- An effluent sampling point;
- Adequate safety provisions (such as fencing);
- A minimum of two cells, each with appropriate inlet/outlet structures to facilitate independent filling/dewatering operations; and
- Accessibility for residual removement (by providing ramps).

The aluminum minimization program should list any of the required design standards that are already incorporated into the design of the PWTF. If the implementation of any of the standards is impracticable, the BMP plan should provide an evaluation and explanation to support this determination. Explanations may include space restrictions, retrofitting requirements, and/or lack of necessity due to low concentrations of aluminum or alternate, equally adequate, design measures.

The permittee will need to certify at least annually that the facility is in compliance with the requirements of the BMP plan and that training of employees has occurred on an annual basis.

5.2 Discharge of Chemicals and Additives

Chemicals and additives include, but are not limited to algaecides/biocides, antifoams, coagulants, corrosion/scale inhibitors/coatings, disinfectants, flocculants, neutralizing agents, oxidants, oxygen scavengers, pH conditioners, and surfactants. The Draft Permit allows the discharge of only those chemicals and additives specifically disclosed by the Permittee to EPA in its NOI.

[14] The Commonwealth of Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program, Guidelines and Policies for Public Water Supplies: https://www.mass.gov/doc/guidelines-for-public-water-systems-chapter-5-treatment-0.

However, EPA recognizes that chemicals and additives in use at a Facility may change during the term of the permit. As a result, the Draft Permit includes a provision that requires the Permittee to notify EPA in writing of the discharge a new chemical or additive; allows for EPA review of the change; and provides the factors for consideration of such changes. The Draft Permit specifies that for each chemical or additive, the Permittee must submit the following information, at a minimum, in writing to EPA:

- Product name, chemical formula, general description, and manufacturer of the chemical/additive.
- Purpose or use of the chemical/additive.
- Safety Data Sheet (SDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive.
- The frequency (e.g., hourly, daily), magnitude (e.g., maximum application concentration), duration (e.g., hours, days), and method of application for the chemical/additive.
- If available, the vendor's reported aquatic toxicity (i.e., NOAEL and/or LC_{50} in percent for aquatic organism(s)).

The Permittee must also provide an explanation that demonstrates that the discharge of such chemical or additive: 1) will not add any pollutants in concentrations that exceed any permit effluent limitation; and 2) will not add any pollutants that would justify the application of permit conditions different from, or in addition to those currently in this permit.

Assuming these requirements are met, discharges of a new chemical or additive is authorized under the permit upon notification to EPA unless otherwise notified by EPA.

5.3 Dilution Factor Study (Massachusetts Only)

As discussed in Section 3.0 of this Fact Sheet, for facilities discharging to lakes/ponds/reservoirs or for new facilities that discharge to marine waterbodies, EPA and MassDEP have not calculated dilution factors for these facilities. These discharge scenarios require site-specific information, are technically complex and are not routinely calculated for Massachusetts dischargers.[15] Therefore, EPA is making the conservative assumption that no dilution should be granted to these facilities unless new information is provided by the applicant indicating otherwise. However, the Draft PWTF GP does contain a Special Condition allowing the Permittee to conduct a dilution study to determine a defensible dilution factor for their specific discharge. See Section IV.C. of the Draft Permit.

EPA recognizes that the special condition does not comprehensively outline the method for completing the dilution study. In part, this is because dilution allowances are site-specific, and EPA does not intend to narrow the parameters with which dilution could be justified. EPA also expects that for discharges smaller in magnitude or duration, a simpler dye or modelling study would be acceptable, whereas for discharges of greater magnitude with increased potential toxicity, dilution could only be characterized through complex hydrodynamic models. The study

[15] New Hampshire, by default, chooses to not grant dilution factors to discharges to these types of waterbodies.

plan approval process is meant to allow for this nuance in model selection. Further information is provided below to aid in model design.

Dilution Study Guidance

Study Goal. To determine the zone of initial dilution (ZID) and corresponding dilution factor at the edge of that zone for the regulated toxics (e.g., Total Residual Chlorine, Total Aluminum, etc.) from the facility outfall at the critical receiving water flow.

The Zone of Initial Dilution is defined as the area immediately surrounding the outfall where rapid and irreversible turbulent mixing of the wastewater with the receiving water is achieved. In the ZID, turbulent mixing of the submerged discharges is achieved through the momentum of the discharge leaving the outfall and the buoyancy of the effluent relative to the receiving water. The ZID ends when the diluted wastewater ceases to rise in the water column and first begins to spread horizontally.[16]

A dilution factor at the edge of the ZID would be used to assess the acute toxicity of the effluent plume. In addition to the ZID, a dilution study could also be expanded to delineate a larger mixing zone where chronic criteria could be exceeded but the use and size of the mixing zone would be limited in extent so as not to impair any designated uses of the waterbody. At the edge of this mixing zone, chronic dilution would be determined.

In Massachusetts, for coastal and marine waters and for lakes, ponds, EPA and DEP determine the critical flow (or "extreme hydrologic condition") on a case-by-case basis in accordance with 314 CMR 4.03(3)(c). Typically, the low slack tide scenario is chosen for tidal environments. However, alternative critical conditions may be appropriate depending on model selection.

Study Considerations

- Outfall design: The orientation, size, and location of the outfall opening in the receiving water.
- Discharge Characteristics. The timing, frequency, and magnitude of discharge.
- Environmental Conditions. While not required for models of the ZID, models that incorporate more complex hydrodynamic behavior and far-field effects typically consider tides, riverine input, wind intensity and direction, and thermal and saline stratification.
- Study selection. Dye-tracer studies or mathematical models are both acceptable ways for evaluating dilution. Models that are widely used for academic or engineering work and that can model the ZID or alternative mixing zone being studied are acceptable, e.g., CORMIX, https://www.epa.gov/ceam/cormix.

Additional References

EPA, 1991. Technical Support Document for Water Quality-Based Toxics Control. See section 4.4 for a description of mixing zone analyses. https://www3.epa.gov/npdes/pubs/owm0264.pdf.

[16] See Massachusetts Surface Water Quality Standards Implementation Policy for Mixing Zones (1993). Available at: https://www.epa.gov/sites/default/files/2014-12/documents/mawqs-mixing-zone.pdf.

EPA, 2010. *National Pollutant Discharge Elimination System (NPDES) Permit Writers' Manual*. See section 6.2.5 for dilution considerations. https://www.epa.gov/npdes/npdes-permit-writers-manual.

MassDEP, 1993. *Massachusetts Surface Water Quality Standards Implementation Policy for Mixing Zones*. https://www.epa.gov/sites/default/files/2014-12/documents/mawqs-mixing-zone.pdf.

USGS. 1984. *Measurement of Discharge Using Tracers*. https://pubs.er.usgs.gov/publication/ofr84136.

USGS, 1986. *Fluorometric Procedures for Dye Tracing*. https://pubs.er.usgs.gov/publication/twri03A12.

5.4 Schedules of Compliance

According to 40 CFR § 122.47, a permit may, when appropriate, specify a schedule of compliance leading to compliance with the CWA and regulations. Massachusetts regulations for schedules of compliance can be found at 314 CMR 3.11(10). New Hampshire regulations for schedules of compliance in NPDES Permits can be found at Env-Wq 1701.03. Under NPDES regulations at 40 CFR § 122.47(a)(1), schedules must lead to compliance "as soon as possible."

The Draft PWTF GP is proposing new water quality-based effluent limits. See Appendix H of the Draft PWTF GP for specific examples. Given that these limitations may not be achievable upon the date of permit issuance, the permit contains a Special Condition allowing permittees to request a compliance schedule in their NOI submission. Any compliance schedule request should contain the following information at a minimum:

- Reason that the facility cannot currently meet the permit condition and requires a compliance schedule.
- Method for achieving compliance (e.g., re-routing the discharge, constructing new treatment units, changing water treatment process, etc.).
- Anticipated time for compliance. If the proposed schedule exceeds 1 year, include interim project dates.

If upon review of the Draft PWTF GP a permittee anticipates needing a compliance schedule, it is recommended that the applicant reach out to EPA before submitting their NOI to coordinate a compliance schedule. This Special Condition is specific to water quality-based effluent limits.

6.0 Administrative Information

6.1 Notice of Intent (NOI)

6.1.1 NOI Information

To obtain coverage under the PWTF GP, owners or operators of facilities whose discharge or discharges are eligible as defined in Section 1.2 of this Fact Sheet are required to submit notices of intent (NOI) to EPA and the appropriate state agency at the addresses listed on the PWTF GP website, https://www.epa.gov/npdes-permits/potable-water-treatment-facility-general-permit-

pwtf-gp-massachusetts-new-hampshire. Submission of a complete and accurate NOI eliminates the need to apply for an individual permit for a regulated discharge, unless the facility does not meet the eligibility requirements or EPA specifically notifies the owner or operator that an individual permit application must be submitted. The NOI consists of either the suggested NOI format in Appendix G of the PWTF GP or another form of official correspondence containing all of the information stipulated in Appendix G of the PWTF GP. EPA has determined that the information in Appendix G is necessary to evaluate permit eligibility and applicable permit conditions for proposed discharges.

6.1.2 NOI Timeframes

1. Proposed New Discharges: Facilities with proposed new discharges are not eligible for coverage under this General Permit.

2. Existing Permitted Discharges Authorized Under Previous Versions of this General Permit: For facilities covered under previous versions of this General Permit at the time of its issuance, permittees/applicants must submit a Notice of Intent (NOI) to EPA **within 60 days of the effective date of the General Permit** in accordance with 40 CFR 122.28(b)(2)(i) & (ii), unless a waiver for a later date has been approved by EPA ahead of the 60-day deadline. Failure to submit an NOI within 60 days of the effective date of this General Permit for an existing permitted facility will be considered discharging without a permit. An NOI is not required if the permittee submits a Notice of Termination (NOT) of discharge before the 60-day timeframe expires.

3. Existing Permitted Discharges Authorized Under Individual Permits: Any facility operating under an effective (unexpired) individual NPDES permit may request that the individual permit be revoked and that coverage under the General Permit be granted, as outlined in 40 CFR § 122.28(b)(3)(v). If EPA determines that the facility is eligible under this General Permit, then EPA will revoke the individual permit and the General Permit would apply to the discharge. Facilities with expired individual permits that have been administratively continued in accordance with 40 CFR § 122.6 may also apply for coverage under this General Permit. If coverage is granted, the expired individual permit will cease to be in effect.

The deadlines have been selected to ensure prompt coverage under the renewed General Permit, while also allowing operators sufficient time to collect the necessary information.

7.0 Federal Permitting Requirements

7.1 Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA), grants authority and imposes requirements on Federal agencies regarding endangered or threatened species of fish, wildlife, or plants (listed species) and any habitat of such species that has been designated as critical under the ESA (a "critical habitat"). Section 7(a)(2) of the ESA requires every federal

agency, in consultation with and with the assistance of the Secretary of Interior, to ensure that any action it authorizes, funds or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species. The National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) administers Section 7 consultations for marine and anadromous species.

Section 7 of the ESA provides for formal and informal consultation with the Services. For NPDES permits issued in Massachusetts and New Hampshire where EPA is the permit issuing agency and the action area of the permitted discharge overlaps with the presence of federally protected species, draft NPDES permits and fact sheets are routinely submitted to the Services along with biological assessments (BAs) in order to complete informal consultation prior to final issuance of the permit. In this case, EPA will initiate consultation with the Services through the draft General Permit and Fact Sheet during the General Permit's public comment period. Based on EPA's working experience with the Services on numerous prior permits and identification of certain endangered species, general geographic areas of concern in the States and the potentially affected waters, including critical habitats, EPA has prepared this Draft General Permit to ensure adequate protection of listed threatened or endangered species and the critical habitat of such species protected under the ESA.

The discharges eligible/ineligible to be authorized under the PWTF GP are described in Section 1.0 of this Fact Sheet. The PWTF GP specifically excludes coverage to facilities whose discharge(s) are likely to jeopardize the continued existence of listed threatened or endangered species or the critical habitat of such species. The PWTF GP effluent limits are sufficiently stringent to assure that water quality standards protect both aquatic life and human health. The effluent limitations established in the PWTF GP ensure protection of aquatic life and maintenance of the receiving water as an aquatic habitat. Further, the PWTF GP requires the permittee to develop best management practices and requires that individual permits be issued if actual environmental conditions (including the preservation of endangered species) are not adequately covered by the PWTF GP. In addition, the General Permit contains new or revised limitations for aluminum, acute and chronic toxicity, and total residual chlorine. The requirements in this General Permit are consistent with information previously provided by the Services to EPA during the development of other recently issued general permits. Therefore, EPA Region 1 finds that adoption of the PWTF GP is not likely to adversely affect any threatened or endangered species or its critical habitat.

The following are ESA species of concern in Massachusetts and New Hampshire:

Massachusetts (22)	**New Hampshire (18)**
North Atlantic Right Whale (*Eubalaena glacialis*)*	North Atlantic Right Whale (Eubalaena glacialis)*
Fin Whale (*Balaenoptera physalus*)*	Fin Whale (*Balaenoptera physalus*)*
Northern Long-Eared Bat (*Myotis septentrionalis*)	Northern Long-Eared Bat (*Myotis septentrionalis*)
Piping Plover (*Charadrius melodus*)	Canada Lynx (*Lynx canadensis*)

Red Knot (*Calidris canutus rufa*)	Piping Plover (*Charadrius melodus*)
Roseate Tern (*Sterna dougallii dougallii*)	Red Knot (*Calidris canutus rufa*)
Plymouth Redbelly Turtle (*Pseudemys rubriventis bangsi*)	Roseate Tern (*Sterna dougallii dougallii*)
Leatherback Sea Turtle (*Dermochelys coriacea*)*	Dwarf Wedgemussel (*Alasmidonta heterodon*)
Loggerhead Sea Turtle (*Caretta caretta*)*	Atlantic Sturgeon (*Acipenser oxyrinchus*)*
Kemp's Ridley Sea Turtle (*Lepidochelys kempii*)*	Shortnose Sturgeon (*Acipenser brevirostrum*)*
Green Sea Turtle (*Chelonia mydas*)*	Loggerhead Sea Turtle (*Caretta caretta*)*
Bog Turtle (*Clemmys muhlenbergii*)	Kemp's Ridley Sea Turtle (*Lepidochelys kempii*)*
Dwarf Wedgemussel (*Alasmidonta heterodon*)	Green Sea Turtle (*Chelonia mydas*)*
Atlantic Sturgeon (*Acipenser oxyrinchus*)*	North Atlantic Right Whale (*Eubalaena glacialis*)*
Shortnose Sturgeon (*Acipenser brevirostrum*)*	Leatherback Sea Turtle (*Dermochelys coriacea*)*
American Burying Beetle (*Nicrophorus americanus*)	Karner Blue butterfly (*Lycaeides melissa samuelis*)
Northeastern Beach Tiger Beetle (*Cicindela dorsalis dorsalis*)	Jesup's Milkvetch (*Astragalus robbinsii var. jesupii*)
Puritan Tiger Beetle (*Cicindela puritana*)	Northeastern Bulrush (*Scirpus ancistrochaetus*)
Rusty Patched Bumble Bee (*Bombus affinis*)	Small Whorled Pogonia (*Isotria medeoloides*)
American Chaffseed (Schwalbea americana)	
Northeastern Bulrush (*Scirpus ancistrochaetus*)	
Sandplain Gerardia (*Agalinis acuta*)	
Small Whorled Pogonia (*Isotria medeoloides*)	

* These species are under the jurisdiction of NOAA Fisheries Protected Resources Division. All other species are under the jurisdiction of the US Fish and Wildlife Service.

Any facility seeking coverage under the PWTF GP may need to consult with the Services. EPA may designate the applicants as non-Federal representatives for the general permit for the purpose of carrying out formal or informal consultation with the Services to determine whether a Federal action is likely to have an adverse impact on listed species or critical habitat. By terms of this permit, EPA has automatically designated operators as non-Federal representatives for the purpose of conducting formal or informal consultations with the USFWS. (See 50 CFR § 402.08 and § 402.13). However, EPA will coordinate with NOAA Fisheries regarding the marine species under its jurisdiction to determine that the terms of the permit adequately prevent adverse effects, the take of listed species, and adverse effects on critical habitat due to PWTF discharges.

USFWS Consultation

Discharges that are located in areas in which listed endangered or threatened species may be present are not automatically covered under this General Permit. Appendix E of the PWTF GP details how applicants determine what listed species or critical habitat are located near their proposed PWTF discharge. Applicants whose discharges may affect listed species or critical habitat under the jurisdiction of USFWS may need to contact the USFWS to determine whether or not additional consultation is needed. In order to be eligible for coverage under the PWTF General Permits, applicants must certify that they meet one of the three USFWS Eligibility Criteria (A, B, and C) related to listed species and critical habitat under the jurisdiction of the USFWS. The ESA Eligibility Criteria are:

- Criterion A: No endangered or threatened species or critical habitat are in proximity to the discharge(s) or related activities or come in contact with the "action area".
- Criterion B: Formal or informal consultation with FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation).
- Criterion C: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the applicant and affirmed by EPA, that the discharges and related activities do not overlap with the range of protected species and a "no affect" determination is appropriate.
- Criterion D: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the applicant and affirmed by EPA, that the discharges and related activities "may affect but are not likely to adversely affect" any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS.

This certification must be provided on the applicant's NOI. If any permittee initiates contact with the USFWS, they must submit a copy of any communication from the Services with the NOI as directed. Applicants who cannot certify compliance with the ESA requirements on the NOI must contact EPA to determine if eligibility for an individual NPDES permit is possible or to discuss other possible options for the proposed discharge.

For facilities that meet USFWS Eligibility Criteria B (i.e., they cannot meet Criteria A or C); or for facilities that cannot meet any of the ESA Eligibility Criteria, coverage under the General Permit is available only if the applicant contacts USFWS under § 7 of the Endangered Species Act, and it is confirmed that the applicant's discharges are not likely to affect listed species, or the communication results in a written concurrence by the Service(s) on a finding that the applicant's discharges are not likely to adversely affect listed species.

EPA has determined that the following endangered species and their critical habitat are not likely to be adversely affected by actions authorized under the permit because they are terrestrial animals or plants that are not likely to have significant interaction with the permitted activities (waterbody discharges). These species are:

Northeastern Bulrush (*Scirpus ancistrochaetus*)
Piping Plover (*Charadrius melodus*)
Red Knot (*Calidris canutus rufa*)
Roseate Tern (Sterna dougallii dougallii)
American Chaffseed (*Schwalbea americana*)
Sandplain Gerardia (*Agalinis acuta*)
Small Whorled Pogonia (*Isotria medeoloides*)
Plymouth Redbelly Turtle (*Pseudemys rubriventis bangsi*)
Bog Turtle (*Clemmys muhlenbergii*)
Puritan Tiger Beetle (*Cicindela puritana*)
Northeastern Beach Tiger Beetle (*Cicindela dorsalis dorsalis*)
Rusty Patched Bumble Bee (*Bombus affinis*)
American Burying Beetle (*Nicrophorus americanus*)
Karner Blue Butterfly (*Lycaeides melissa samuelis*)
Canada Lynx (*Lynx canadensis*)
Jesup's Milkvetch (*Astragalus robbinsii var. jesupii*)

If these are the only species identified as part of a permittee's endangered species review, Criteria C has been met and no further consultation is required.

In addition, for the northern long-eared bat (*Myotis septentrionalis*), a terrestrial listed threatened species occuring statewide in New Hampshire and Massachusetts, EPA has taken on the responsibility of consulting with USFWS under ESA section 7. The bat is under the jurisdiction of the USWS and could come in contact with the aquatic action area of the facilities seeking coverage under the PWTF GP.[17] According to the USFWS, the bat is found in the following habitats based on seasons, "winter – mines and caves; summer – wide variety of forested habitats." This species is not considered aquatic. However, because the regulated discharges from the 71 facilities expected to seek coverage in Massachusetts and 5 facilities in New Hampshire are located throughout the two states, EPA prepared an Effects Determination Letter for the PWTF GP reissuance and submitted it to USFWS. Based on the information submitted by EPA, the USFWS notified EPA by letter, dated November 3, 2022, that the permit reissuance is consistent with activities analyzed in the USFWS January 5, 2016, Programmatic Biological Opinion (PBO).[18,19] The PBO outlines activities that are excepted from "take" prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.). The USFWS consistency letter concluded EPA's consultation responsibilities for the PWTF GP NPDES permitting action under ESA Section 7(a)(2) with respect to the northern long-eared bat. No further ESA section 7 consultation is required with USFWS. No further consultation is required from permittees with respect to the bat.

USFWS Contact Information:

[17] See §7 resources for USFWS at https://ecos.fws.gov/ipac/.
[18] USFWS Massachusetts Project Code: 2023-0012054, November 3, 2022.
[19] USFWS New Hampshire Project Code: 2023-0012056, November 3, 2022

U.S. Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
Phone: (603) 223-2541

NOAA Fisheries Consultation

For facilities covered under the expired General Permit, EPA will initiate consultation with NOAA Fisheries during the public comment period of the draft General Permit as appropriate. For facilities not previously covered under the General Permit (i.e., new permittees), EPA will consult (formally or informally) with NOAA Fisheries if necessary to ensure that the listed species under their jurisdiction are not affected by the proposed discharge or to ensure that the discharge may affect but is not likely to adversely affect listed species. These permittees must respond to all ESA-related questions in the NOI.

NOAA Fisheries Contact Information:

Greater Atlantic Region Fisheries
Protected Resources Division
55 Great Republic Drive
Gloucester, MA 01930-2298
Phone: (978) 281-9300 ext. 6505

7.2 Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (*see* 16 U.S.C. § 1801 *et seq.*, 1998), EPA is required to consult with the NOAA Fisheries if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat." 16 U.S.C. § 1855(b). The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." 16 U.S.C. § 1802(10). "Adverse impact" means any impact that reduces the quality and/or quantity of EFH 50 CFR § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), or site specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

EFH is only designated for fish species for which federal Fisheries Management Plans exist. *See* 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. In a letter dated October 10, 2000 to EPA, NMFS agreed that for projects authorized through the NPDES permit process, EPA may use its existing procedures regarding consultation/environmental review to satisfy the requirements of the FCMA. According to the agreement between NMFS and EPA, EFH notification for purposes of consultation can be accomplished in the EFH Section of the fact sheet for the Draft Permit or Federal Register notice.

Proposed Action

EPA is reissuing the NPDES general permit for discharges of drinking water treatment residuals from potable water treatment facilities. This General Permit provides coverage to facilities located in Massachusetts and New Hampshire, whose discharge consists of wastewaters described in Part 1.2 of this Fact Sheet. Please refer to Part 1.0 of this Fact Sheet for a more detailed explanation of the proposed changes to the Expired PWTF GP.

Resources

Part 1.3 of this Fact Sheet lists the specific discharges excluded from coverage, including discharges to ocean sanctuaries, territorial seas, Class A waters in New Hampshire, and designated areas under the Essential Fish Habitat Act unless the requirements specified in this General Permit are fulfilled. All but one of the potable water treatment facilities covered by the expired General Permit discharge into freshwater bodies. EPA's EFH assessment pertains to the list of species as accessed from the following website:
https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper

The following is a list of the EFH species and applicable lifestage(s) for the area that includes Massachusetts, New Hampshire, and the adjacent marine waters:

List of EFH species and lifestages for the area that includes Massachusetts, New Hampshire, and the adjacent marine waters.

Species/Management Unit	Coastal Area	Lifestage(s) Found at Location
Atlantic Sea Scallop	NH, NMA, SMA	ALL
Atlantic Salmon	NH, NMA	ALL
Atlantic Wolffish	NH, NMA, SMA	ALL
Haddock	NMA, SMA	Juveniles
Winter Flounder	NH, NMA, SMA	Eggs, Juvenile, Larvae/Adult
Little Skate	NH, NMA, SMA	Juvenile, Adult
Ocean Pout	NMA, SMA	Adult, Eggs, Juvenile
Atlantic Herring	NH, NMA, SMA	Juvenile, Adult, Larvae
Atlantic Cod	NH, NMA, SMA	Larvae, Adult, Juvenile, Eggs
Pollock	NH, NMA, SMA	Adult, Juvenile, Eggs, Larvae
Red Hake	NH, NMA, SMA	Adult, Eggs/Larvae/Juvenile
Silver Hake	NMA, SMA	Eggs/Larvae, Adult
Yellowtail Flounder	NMA, SMA	Adult, Juvenile, Larvae, Eggs
Monkfish	NMA, SMA	Eggs/Larvae
White Hake	NMA, SMA	Larvae, Adult, Eggs, Juvenile
Windowpane Flounder	NH, NMA, SMA	Adult, Larvae, Eggs, Juvenile
Winter Skate	NH, NMA, SMA	Adult, Juvenile
Smooth Skate	NH	Juvenile
White Hake	NH	Adult, Eggs, Juvenile

Witch Flounder	NMA, SMA	Adult
American Plaice	NMA, SMA	Adult, Juvenile, Larvae, Eggs
Acadian Redfish	NMA, SMA	Larvae
Thorny Skate	NH, NMA, SMA	Juvenile
Bluefin Tuna	NH, NMA, SMA	Adult, Juvenile
Basking Shark	NMA	ALL
White Shark	NMA, SMA	Juvenile/Adult
Sand Tiger Shark	SMA	Neonate/Juvenile
Northern Shortfin Squid	NMA, SMA	Adult
Longfin Inshore Squid	NMA, SMA	Juvenile, Adult
Atlantic Mackerel	NH, NMA, SMA	Eggs, Larvae, Juvenile, Adult
Bluefish	NH, NMA, SMA	Adult, Juvenile
Atlantic Butterfish	NH, NMA, SMA	Eggs, Larvae, Adult, Juvenile
Spiny Dogfish	NMA, SMA	Sub-Adult Female, Adult Male, Adult Female
Atlantic Surfclam	NMA, SMA	Juvenile, Adult
Scup	NMA, SMA	Juvenile, Adult
Summer Flounder	SMA	Larvae
Black Sea Bass	NMA, SMA	Juvenile, Adult
Species/Management Unit	**River System**	**Lifestage(s) Found at Location**
Atlantic Salmon	NH – CR, MR, AR, LR MA – CR, MR	ALL
Habitat Areas of Particular Concern		**Coastal Area**
Inshore 20m Juvenile Cod		NH, NMA, SMA
Freshwater and Tidal Macrophytes Adult and Juvenile Summer Flounder		SMA

NH = New Hampshire coastal waters near the mouth of the Piscataqua River
NMA = North Coastal Massachusetts waters near Gloucester
SMA = South Coastal Massachusetts waters near Cohasset
CR = Connecticut River Watershed
MR = Merrimack River Watershed
AR = Androscoggin River Watershed
LR = Lamprey River

EPA has identified 76 likely candidates for coverage under the PWTF GP, including 71 in Massachusetts and 5 in New Hampshire. Although the PWTF GP is available to additional facilities, this assessment considers these 76 representative facilities, all covered under expired versions of the PWTF GP.

None of the potential applicants discharge into marine waters; however, one (in Newburyport) discharges to somewhat saline waters of the lower Merrimack River in Massachusetts.

Regarding freshwater, 5 facilities covered under the expired PWTF GPs had discharges within the Connecticut River watershed (non on the mainstem or major tributaries), 5 discharged along the Merrimack River (2 on the mainstem and 3 others in the watershed), and 1 PWTF discharged near Great Bay. All three of these water bodies are designated EFH for Atlantic salmon (Salmo salar).[20]

Analysis of Effects

As described above, the PWTF GP covers a variety of potential discharges which could occur anywhere in Massachusetts and New Hampshire, except into those waters excluded in Part I.C of the Draft PWTF GP. EPA has identified the following potential sources of impact to aquatic species associated with discharges from PWTFs:

(a) Effluent Toxicity: Certain chemicals used in potable water treatment processes have the potential to cause toxicity in the receiving water. In particular, disinfection (by addition of chemicals designed to kill pathogens) has the potential for the toxic agent to be present in the discharges. The disinfection is commonly done by chlorination. Therefore, the PWTF GP establishes monitoring and limits for Total Residual Chlorine (TRC) in cases where wastewater has previously been chlorinated or which may contain TRC. The TRC limits are based on the states' water quality standards to protect against toxicity to aquatic species.

Coagulation, which removes dirt and other particles suspended in water, is commonly carried out at PWTFs. Facilities may use aluminum-based coagulants, which results in the presence of aluminum in wastewater discharges. Based on the potential toxicity of aluminum towards aquatic life, the PWTF GP requires all permittees to monitor for total recoverable aluminum (both effluent and ambient water) and to implement a Best Management Practices Plan, which includes requirements to minimize the discharge of aluminum where it is used as a coagulant in the water treatment process. In addition, EPA has identified a subset of facilities that have reasonable potential to cause or contribute to excursions above water quality standards for aluminum and has set site-specific effluent limitations for Total Aluminum for those facilities.

Additionally, the PWTF GP requires monitoring for arsenic when the PWTF is providing treatment to remove arsenic from the raw water source. Based on a review of the facilities covered under the last PWTF GP and required to monitor for arsenic, none of the facilities discharged arsenic at levels that had the reasonable potential to cause or contribute to violations of water quality standards.

The PWTF GP prohibits the discharge of pollutants in amounts that would be toxic to aquatic life. It prohibits any discharge that violates State or Federal water quality standards. Finally, it prohibits the discharge of any water treatment additives without notification of the regulatory agencies. Examples of water treatment additives that potentially could be found within discharged wastewater include chemicals used for coagulation, pH neutralization, dechlorination, control of biological growth, and control

[20] https://www.fisheries.noaa.gov/species/atlantic-salmon

of corrosion and scale in water pipes.

To further ensure that PWTFs covered under the General Permit are not discharging toxics into receiving water or adversely impacting aquatic life, EPA has several additional monitoring requirements. Facilities that use iron-based coagulants or facilities that discharge phosphorus-containing chemicals must monitor and report each respective parameter on a monthly basis. Another significant requirement of this draft PWTF GP is that all PWTFs that discharge on an intermittent or continuous basis will be required to conduct annual acute Whole Effluent Toxicity (WET) Tests. WET Testing, a type of biological test, is conducted to determine whether certain effluents, which may contain potentially toxic pollutants, are discharged in a combination which produces a toxic amount of pollutants in the receiving water. A subset of facilities have been identified as having reasonable potential to cause or contribute to excursions above state water quality standards for WET. As a result, these facilities are being authorized with maximum daily LC-50 limitations.

EPA is requiring the testing of one species, *Ceriodaphnia dubia*, for the freshwater WET testing. As previously mentioned, the vast majority of PWTFs under this General Permit are freshwater and *C. dubia* is the most sensitive species for freshwater. If a facility discharges into a coastal/marine area, one acute saltwater WET Test must be conducted instead. Likewise, testing of one species, Inland Silverside (*Menidia beryllina*) for saltwater WET testing is required because of its sensitivity.

(b) Discharge of Solids: Solids are commonly removed from raw source water at PWTFs. These have the potential to settle and cover bottom habitat areas, potentially causing benthic smothering. Suspended solids can also cause turbidity in the receiving waters if discharged at high levels, which could reduce light penetration and limit the growth of rooted aquatic vegetation that serves as a critical habitat for fish and other aquatic organisms. The PWTF GP contains effluent limits for total suspended solids that can be achieved by well-operated wastewater treatment facilities. The monthly average and maximum daily limitation for TSS are 30 mg/l and 50 mg/l, respectively. These are sufficiently stringent to achieve the water quality standards of Massachusetts and New Hampshire. Additionally, the permit contains narrative prohibitions on the discharge of settleable solids and unacceptable color in the receiving water.

EPA's Opinion of Potential Impacts

EPA believes that the discharges authorized under the PWTF GP will have minimal adverse effects to EFH for a number of reasons, including:

- This is a reissuance of an existing permit;
- The effluent limitations established in the PWTF GP ensure protection of aquatic life and maintenance of the receiving water as an aquatic habitat;
- The proposed limits and coverage requirements for the PWTF GP are sufficiently stringent to assure that state and federal water quality standards will be met and the permit prohibits violation of these standards;

- The PWTF GP specifically excludes coverage to facilities whose discharge may adversely affect threatened or endangered species or their habitat; and
- The PWTF GP includes water quality based limits for total residual chlorine (TRC) and total aluminum; monitoring requirements for arsenic, iron, and phosphorus (where applicable); requirements to design, implement, and maintain a Best Management Practices Plan, which will require facilities to minimize the discharge of aluminum where it is used as a coagulant in the water treatment process, and a requirement for PWTFs that discharge on an intermittent or continuous basis to conduct annual acute and chronic WET tests during the permit term.

EPA concludes that the effluent limitations, conditions, and monitoring requirements contained in the PWTF GP minimize adverse effects to aquatic organisms, including EFH species, as well as their habitat and forage species.

Proposed Mitigation:

Mitigation for unavoidable impacts associated with reissuance of the PWTF GP is not warranted at this time because it is EPA's opinion that impacts will be negligible if the PWTF GP conditions are followed. If adverse impacts to EFH do occur, either as a result of noncompliance or from unanticipated effects from this activity, authorization to discharge under the PWTF GP can be revoked. Furthermore, the General Permit contains provisions that require the applicant to perform toxicity testing if EPA or the State believes it is warranted and/or to require that an individual permit be issued if actual environmental conditions are not adequately covered by the General Permit. Should new information become available that changes the basis for EPA's assessment, then consultation with NMFS under the appropriate statute(s) will be reinitiated.

7.3 National Historic Preservation Act (NHPA)

Facilities which adversely affect properties listed or eligible for listing in the National Registry of Historic Places under the National Historic Preservation Act of 1966 (NHPA), 16 USC §§470 et seq. are not authorized to discharge under the PWTF GP. Applicants must determine whether their discharge(s) or implementation of best management practices (BMPs) to control such discharges, authorized under this General Permit, have the potential to affect a property that is either listed or eligible for listing on the National Register of Historic Places. The applicant must certify the criterion used to determine permit eligibility and indicate it in the space provided on the NOI. Further information is provided in Appendix F of the Draft Permit.

7.4 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA), l6 U.S.C. 145l et seq., and its implementing regulations (15 CFR part 930) require a determination that any federally licensed activity affecting the coastal zone with an approved Coastal Zone Management Program (CZMP) is consistent with the CZMA. In the case of general permits, EPA has the responsibility for making the consistency certification request and submitting it to the state for concurrence. EPA will request that both the Executive Office of Environmental Affairs, MA CZM, Project Review Coordinator, 251 Causeway Street, Suite 800, Boston, MA 02114; and the Federal Consistency

Officer, New Hampshire Coastal Program, 222 International Drive, Suite 175, Portsmouth, NH 03801, provide a consistency concurrence that the proposed PWTF GP is consistent with the MA and NH CZMPs.

MA CZMA Consistency Review

Of the 71 Massachusetts facilities eligible for potential coverage under the PWTF GP, one facility discharges discharge to the coastal zone (MAG640018: Newburyport Water Works). The Draft PWTF GP requires a consistency review to ensure that the discharges from this facility is consistent with the MA CZMPs. Facilities located in Massachusetts must conduct proposed activities (i.e., discharges) in a manner consistent with the applicable Massachusetts Coastal Zone Management (MACZM) policies as outlined below.

WATER QUALITY POLICY #1 - Ensure that point-source discharges in or affecting the coastal zone are consistent with federally approved state effluent limitations and water quality standards.

HABITAT POLICY #1 - Protect coastal resource areas including salt marshes, shellfish beds, dunes, beaches, barrier beaches, salt ponds, eelgrass beds, and freshwater wetlands for their important role as natural habitats.

All PWTF GP Permittees must control discharges as necessary to meet applicable numeric and narrative state water quality standards for any discharges so authorized. EPA Region 1 has requested that the MACZM Office review the Region's determination and confirm that the Draft PWTF GP is consistent with the State's CZMP.

NH CZMA Consistency Review

None of the five New Hampshire facilities eligible for coverage under the PWTF GP discharge to the coastal zone.

8.0 Environmental Justice Considerations

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities." EPA strives to enhance the ability of overburdened communities to participate fully and meaningfully in the permitting process for EPA-issued permits, including NPDES permits. "Overburdened" communities can include minority, low-income, tribal, and indigenous populations or communities that potentially experience disproportionate environmental harms and risks. As part of an agency-wide effort, EPA Region 1 has considered implementing enhanced external stakeholder outreach for EPA-issued permits that impact communities with EJ concerns. For more information, please visit https://www.epa.gov/environmentaljustice, Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and EPA's Region

1 Environmental Justice Action Plan, https://www.epa.gov/system/files/documents/2021-10/region-1-ejactionplan-508-compliant.pdf.

As part of the permit development process, EPA Region 1 conducted a screening analysis to determine whether this permit action could affect overburdened communities. "Overburdened" communities can include minority, low-income, tribal, and indigenous populations or communities that potentially experience disproportionate environmental harms and risks. EPA used a nationally consistent geospatial tool that contains demographic and environmental data for the United States at the Census block group level, EJScreen.[21] This tool is used to identify permits for which enhanced outreach may be warranted.

As an initial step, EJScreen was used to determine if each facility was discharging near an overburdened community. An overburdened community was defined to have at least one EJ Index equal to or exceeding the 80th percentile at the national level. Near was defined as being within 1-mile of a Census Block Group defined as overburdened. Of the 76 facilities currently covered by the PWTF GP, 15 facilities were identified as being near an overburdened community. A list of the facilities is provided below:

1. MAG640004 – Walsh Ave Water Treatment Plant – Auburn, MA
2. MAG640006 – Coolidge Avenue Water Treatment Plant – Peabody, MA
3. MAG640007 – Westborough Water Purification Facility – Westborough, MA
4. MAG640031 – Great Pond Water Treatment Plant – Weymouth, MA
5. MAG640032 – Randolph-Holbrook Water Treatment Plant – Randolph, MA
6. MAG640040 – Walter J. Sullivan Water Treatment Facility – Cambridge, MA
7. MAG640041 – Crystal Lake Water Treatment Facility – Gardner, MA
8. MAG640047 – Clinton Water Treatment Facility – Clinton, MA
9. MAG640055 – Lowell Regional Water Utility – Lowell, MA
10. MAG640057 – East Chelmsford Water Treatment Plant – East Chelmsford, MA
11. MAG640076 – Bomil Wells Water Treatment Facility – North Chelmsford, MA
12. MAG640079 – Raymond Reardon Water Treatment Plant – Lynn, MA
13. MAG640080 – Arthur J. Bilodeau Water Treatment Plant – Weymouth, MA
14. MAG640081 – Fall River Water Treatment Facility – Fall River, MA
15. MAG640082 – Great Pond Water Treatment Plant – Braintree, MA

EPA considered the following information to determine whether the renewal of the PWTF GP would have disproportionate environmental and human health effects on minority and low-income populations. For one, the facilities covered by this permit are not commercial enterprises, they are public utilities that provide the communities they are located within a useful service, safe drinking water. Additionally, as noted above, overburdened communities do not make up a disproportionate number of the facilities covered by this general permit, they make up less than 20% of the current permitted universe. The conditions contained in this permit renewal are designed to ensure the attainment of state water quality standards and are improvements over the previous permit, with new effluent limitations for Total Aluminum and acute toxicity and renewed TRC limitations. These conditions will be a net positive to the environment in these communities. Furthermore, alternatives to adopting this permit may have significant negative

[21] More information on EJScreen is available at this webpage, https://www.epa.gov/ejscreen.

impacts on the communities. For instance, removing coverage from these facilities could result in costly upgrades to facilities to eliminate or reroute discharges that may be passed along to residents. As a result of these considerations, EPA has not identified specific environmental justice or equity concerns with reissuance of this general permit.

Because EPA's screening assessments may not have identified specific environmental justice or equity concerns, the agency specifically requests input from affected communities on whether and how there are relevant concerns about the discharges being authorized under this permit.

Regardless of whether a facility is located near a potentially overburdened community, EPA encourages Permittees to review (and to consider adopting, where appropriate) Promising Practices for Permit Applicants Seeking EPA-Issued Permits: Ways To Engage Neighboring Communities (see https://www.federalregister.gov/d/2013-10945). Examples of promising practices include: thinking ahead about community's characteristics and the effects of the permit on the community, engaging the right community leaders, providing progress or status reports, inviting members of the community for tours of the facility, providing informational materials translated into different languages, setting up a hotline for community members to voice concerns or request information, follow up, etc.

For more information, please visit https://www.epa.gov/environmentaljustice and Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

9.0 Public Comments, Hearing Requests and Permit Appeals

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to:

Nathan Chien
EPA Region 1
5 Post Office Square, Suite 100 (06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1649
Email: Chien.Nathan@epa.gov

Prior to the close of the public comment period, any person, may submit a written request to EPA for a public hearing to consider the Draft Permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held if the criteria stated in 40 CFR § 124.12 are satisfied. In reaching a final decision on the Draft Permit, EPA will respond to all significant comments in a Response to Comments document attached to the Final Permit and make these responses available to the public at EPA's Boston office and on EPA's website.

Following the close of the comment period, and after any public hearings, if such hearings are held, EPA will issue a Final Permit decision, forward a copy of the final decision to the applicant, and provide a copy or notice of availability of the final decision to each person who

submitted written comments or requested notice. Within 30 days after EPA serves notice of the issuance of the Final Permit decision, an appeal of the federal NPDES permit may be commenced by filing a petition for review of the permit with the Clerk of EPA's Environmental Appeals Board in accordance with the procedures at 40 CFR § 124.19.

10.0 Administrative Record

Following U.S. Centers for Disease Control and Prevention (CDC) and U.S. Office of Personnel Management (OPM) guidance and specific state guidelines impacting our regional offices, EPA's workforce has been directed to telework to help prevent transmission of the coronavirus. While in this workforce telework status, there are practical limitations on the ability of Agency personnel to allow the public to review the administrative record in person at the EPA Boston office. However, any documents relating to this draft can be requested from the individual listed above.

The administrative record on which this Draft Permit is based may be accessed at EPA's Boston office by appointment, Monday through Friday, excluding holidays from Nathan Chien, EPA Region1, 5 Post Office Square, Suite-100 (06-1), Boston, MA 02109-3912 or via email to Chien.Nathan@epa.gov.

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Date

_____
Ken Moraff, Director
Water Division
U.S. Environmental Protection Agency