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FACT SHEET AND SUPPLEMENTAL INFORMATION

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES GENERAL PERMIT NUMBER: MAG590000

PUBLIC NOTICE START AND END DATES: February 8, 2022 to April 11, 2022

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APPENDICES

1 Coverage Under This Permit

The Environmental Protection Agency, Region 1 ("EPA" or "Region 1"), is issuing the draft National Pollutant Discharge Elimination System (NPDES) Medium Wastewater Treatment Facilities (WWTFs) General Permit that are treatment works treating domestic sewage (collectively "facilities") which discharge treated wastewater to certain surface waters of the Commonwealth of Massachusetts (including both Commonwealth and Indian Country Lands). The term "treatment works treating domestic sewage" is defined as a publicly owned treatment works ("POTW") or any other sewage sludge or wastewater treatment system involved in the storage, treatment, recycling, and reclamation of municipal or domestic sewage (see 40 CFR § 122.2).

This Fact Sheet contains a summary of the following:

- Types of discharges eligible/ineligible for coverage;
- Proposed effluent limitations;
- Monitoring requirements;
- Reporting requirements;
- Record-keeping requirements;
- Instructions for public participation; and
- Legal information supporting this general permit.

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 Background Information

General Permit MAG590000 applies to eligible discharges in Massachusetts and is referred to as the "Medium Wastewater Treatment Facility General Permit" ("Medium WWTF GP" or the "General Permit") throughout this Fact Sheet and in the draft General Permit. The Medium WWTF GP will replace the individual permits for eligible dischargers upon the date they are authorized for coverage. All eligible dischargers either have an individual permit that is currently effective or has been administratively continued in accordance with 40 CFR § 122.6.

Section 301(a) of the Clean Water Act (the "Act") 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 Act. EPA's regulations provide for the issuance of two types of NPDES permits: individual permits and general permits. Individual permits are issued to individual discharges and are developed according to the specific nature of each facility and the receiving water into which each facility discharges. Under the authority provided at 40 CFR § 122.28, EPA may issue a general permit to regulate one or more categories or subcategories of "treatment works treating domestic sewage," if the sources of "treatment works treating domestic sewage" within each category or subcategory 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 (40 CFR § 122.28(2)(ii)(A)(B)(C)and (D)).

Based on these factors, EPA has determined that discharges from POTWs and other treatment works treating domestic sewage qualify for coverage under a general permit for the following reasons: (1) the point sources eligible for coverage under the General Permit are located in the same geographic area (*i.e.*, in Massachusetts) and employ the same or similar operations in providing a minimum of secondary treatment to domestic wastewater; (2) the wastewater discharged from these sources is similar in composition and requires the same or similar effluent limitations, monitoring requirements, and other conditions to be effectively controlled; and (3) in the opinion of the Director, these point sources consist of multiple facilities within a single category of discharges that are more appropriately controlled and efficiently regulated under a general permit than under individual permits.

Once issued, the Medium WWTF GP will enable eligible facilities to maintain compliance with the Clean Water Act, will extend new environmental and regulatory controls to these dischargers, and will reduce EPA's permit issuance backlog of pending individual permit applications and expired permits.

1.2 Eligibility

Coverage under the Medium WWTF GP is available to all privately and publicly owned treatment works treating domestic sewage in Massachusetts, unless excluded in Part 1.3 below. All eligible discharges in Massachusetts are listed in Attachment E of the General Permit.

1.3 Exclusions

The following discharges are ineligible for coverage under the Medium WWTF GP:

1. Any facility that is not defined as a POTW or a treatment works treating domestic sewage, as defined at 40 CFR § 403.3 and 40 CFR § 122.2, respectively;
2. Any facility with design flow less than 1 MGD or greater than 5 MGD.
3. Any facility that does not provide, at a minimum, secondary treatment to the discharge;
4. Any facility with one or more designated Combined Sewer Overflow (CSO) outfalls;
5. Discharges to the territorial sea, as defined at Clean Water Act (CWA) Section 502;
6. Discharges to Special Resource Waters in Massachusetts as defined in the Massachusetts water quality regulations at 314 of the Code of Massachusetts Regulations (CMR) 4.06(3) and (4), including Public Water Supplies (314 CMR 4.06(1)(d)(1), which have been designated by the state as Class A waters, unless a variance is granted by the Massachusetts Department of Environmental Protection ("MassDEP"), under 314 CMR 4.04(3)(b);
7. Discharges to Massachusetts Ocean Sanctuaries, as defined at 302 CMR 5.00;
8. Discharges to Outstanding Resource Waters in Massachusetts as described in the Massachusetts surface water quality standards at 314 CMR 4.04(3);
9. Any new or increased discharge which is inconsistent with the Massachusetts

antidegradation policy;

10. Discharges which are inconsistent with the Massachusetts Coastal Zone Management Program;

11. Discharges which may adversely affect properties listed or eligible for listing in the National Registry of Historic Places under the National Historic Preservation Act of 1966, 16 U.S.C. Sections 470 et seq., as amended;

12. Discharges which may adversely affect threatened or endangered species, or critical habitats of such species, under the Endangered Species Act (ESA) or may adversely affect Essential Fish Habitat (EFH) under the Magnuson Stevens Fishery Conservation and Management Act; and

13. Any "New Source" as defined in 40 CFR § 122.2.

Any discharge identified above will need to obtain (or maintain) coverage under an individual NPDES permit.

2 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), 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, 304(d); 40 CFR Parts 122, 125, 131.

2.1 Technology-Based Requirements

Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant reducing technology available and economically achievable for the type of facility being permitted. *See* CWA § 301(b). As a class, publicly owned treatment works (POTWs) must meet performance-based requirements based on available wastewater treatment technology. *See* CWA § 301(b)(1)(B). The performance level for POTWs is referred to as

"secondary treatment." Secondary treatment is comprised of technology-based requirements expressed in terms of biological oxygen demand (BOD_5), total suspended solids (TSS) and pH. *See* 40 CFR Part 133.

Under CWA § 301(b)(1), POTWs must have achieved effluent limits based upon secondary treatment technology by July 1, 1977. Since all statutory deadlines for meeting various treatment technology-based effluent limitations established pursuant to the CWA have expired, when technology-based effluent limits are included in a permit, compliance with those limitations is from the date the issued permit becomes effective. *See* 40 CFR § 125.3(a)(1).

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) beneficial designated use or uses 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) anti-degradation 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 Massachusetts WQS can be found in 314 CMR 4.00.

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 limits, 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 are therefore typically applicable to monthly average 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 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 Antidegradation 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 must be maintained and protected.

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.

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 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).

EPA confirms that for all eligible dischargers under this General Permit, there are no WLAs which have not yet been incorporated into the facility's existing permit. Therefore, no new effluent limitations are proposed in the draft General Permit based on a TMDL and any existing permit limitations based on a TMDL will be carried forward into each facility's authorization to discharge.

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).

For eligible dischargers that have a currently effective individual permits that was issued within the past three years (*i.e.*, since the beginning of 2019), EPA determined that it was not necessary or appropriate to reevaluate whether there is reasonable potential to cause or contribute to an excursion above water quality standards for phosphorus, metals or ammonia nitrogen based on a limited dataset consisting of significantly less than five years since the previous permit reissuance. For these dischargers, EPA will carry forward any existing effluent limits into their authorization under the General Permit. EPA will reevaluate the impact of these pollutants in the next reissuance of this General Permit.

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 waivered), 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 General Permit will be certified.

If the State believes that conditions more stringent than those contained in the draft General

Permit are necessary to meet the requirements of either CWA §§ 208(e), 301, 302, 303, 306 and 307 or the 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 the EPA 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 General 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 WQS and State requirements are contained in 40 CFR §§ 122.4 (d) and 122.44(d).

2.3 Effluent Flow Requirements

Sewage treatment plant discharge is encompassed within the definition of "pollutant" and is subject to regulation under the CWA. The CWA defines "pollutant" to mean, *inter alia*, "municipal...waste" and "sewage…discharged into water." 33 U.S.C. § 1362(6).

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 the 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.[1] 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 wastewater effluent flow is within EPA's authority to condition a permit to carry out the objectives of the Act. *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 WQBEL and reasonable potential calculations account for "worst case" conditions is encompassed by the references to "condition" and "limitations" in CWA §§ 402 and 301 and implementing regulations, as they are designed to assure compliance with applicable water quality regulations, including antidegradation. Regulating the quantity of pollutants in the discharge through a restriction on the quantity of wastewater effluent is consistent with the overall structure and purposes of 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. Operating the facilities wastewater treatment systems as designed includes operating within the facility's design wastewater effluent flow.

EPA has also included the effluent flow limit in the permit to minimize or prevent infiltration and inflow (I/I) that may result in unauthorized discharges and compromise proper operation and maintenance of the facility. Improper operation and maintenance may result in noncompliance with permit effluent limitations. Infiltration is groundwater that enters the collection system though physical defects such as cracked pipes or deteriorated joints. Inflow is extraneous flow added to the collection system that enters the collection system through point sources such as roof leaders, yard and area drains, sump pumps, manhole covers, tide gates, and cross connections from storm water systems. Significant I/I in a collection system may displace sanitary flow, reducing the capacity available for treatment and the operating efficiency of the treatment works and to properly operate and maintain the treatment works.

Furthermore, the extraneous flow due to significant I/I greatly increases the potential for sanitary sewer overflows (SSOs) in separate systems and in combined systems. 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).

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[1] 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).

2.4 Monitoring and Reporting Requirements

2.4.1 Monitoring Requirements

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 the draft General Permit have been established to yield data representative of each Permittee's discharge 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 General Permit specifies routine sampling and analysis requirements to provide ongoing, representative information on the levels of regulated constituents in the wastewater discharges. The monitoring program is needed to enable EPA and the State to assess the characteristics of each 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*.[2] 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[3] (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or

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[2] 79 Fed. Reg. 49,001 (Aug 19, 2014).

[3] 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* 79 Fed. Reg. 49,001 (Aug. 19, 2014).

- 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 126 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 General 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.[4]

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 General 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 General Permit, 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 required limitations in the draft General Permit are at least as stringent as limitations

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

included in each facility's current individual permit unless specific conditions exist to justify one of the exceptions listed in accordance with CWA §§ 402(o) and 303(d)(4). Discussion of any applicable exceptions are discussed in sections that follow. Therefore, the draft General Permit complies with the anti-backsliding requirements of the CWA.

2.7 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). Under NPDES regulations at 40 CFR § 122.47(a)(1), schedules must lead to compliance "as soon as possible."

For any compliance schedules that are currently effective in an individual permit, such compliance schedules will be carried forward with the same due date(s) that are required under that individual permit as described in Part III.F of the draft General Permit.

For any newly established or more stringent water quality-based effluent limits (summarized in Attachment E of the General Permit) which the Permittee is not expected to be in compliance with upon the effective date of the General Permit, the Permittee will have a schedule of compliance as described in Part III.F of the draft General Permit. For each new or more stringent limit, EPA determined whether the Permittee was already in compliance or, if not, whether the limit could likely be achieved via optimization or if significant plant upgrades would likely be required. These determinations were made by comparing the recent effluent data from each respective facility during the most recent 60-month review period to the effluent limit proposed in the draft General Permit. If a facility was discharging near or above the proposed limit and not consistently in compliance, then a 2-year compliance schedule was used, given that the limit could likely be achieved via optimization or minor process changes. If a facility was already discharging well below the proposed limit, then a compliance schedule is not necessary, and one is not included for that limit in Part III.F of the General Permit.

<u>Aluminum Compliance Schedule:</u>

Based on EPA's evaluation of site-specific aluminum data, the draft General Permit proposes new or more stringent final aluminum effluent limits for seven eligible WWTFs (*i.e.*, Medfield, Adams, Ware, Greenfield, Northbridge, Concord and Belchertown), as summarized in Attachment E of the General Permit. These limits are based on current EPA-approved Massachusetts aluminum criteria to protect freshwater aquatic life. However, EPA is aware that MassDEP promulgated final revised Surface Water Quality Standards (SWQS), including aluminum criteria, on November 12, 2021. The revised SWQS still need to go through the EPA review and approval process before they can be used in NPDES permits.

MassDEP's promulgated final revised aluminum criteria are higher than the current EPA-approved criteria for some locations, depending on watershed-specific or site-specific data. EPA has therefore determined that it is appropriate to include a schedule of compliance, pursuant to 40 CFR § 122.47, in the draft General Permit which provides the Permittees listed above with a 3-year period to achieve compliance with the final aluminum effluent limit. Additionally, the Permittees may apply for a permit modification to allow additional time for compliance if EPA

has not yet acted on the new criteria. If the new aluminum criteria adopted by Massachusetts are approved by EPA, and before the final aluminum effluent limit goes into effect, the Permittees may apply for a permit modification to amend the permit based on the new criteria. If warranted by the new criteria and a reasonable potential analysis, EPA may relax or remove the effluent limit to the extent consistent with anti-degradation requirements. Such a relaxation or removal would not trigger anti-backsliding requirements as those requirements do not apply to effluent limits which have yet to take effect pursuant to a schedule of compliance. *See American Iron and Steel Institute v. EPA*, 115 F.3d 979, 993 n.6 (D.C. Cir. 1997) ("EPA interprets § 402 to allow later relaxation of [an effluent limit] so long as the limit has yet become effective.")

However, if the revised SWQS are approved by EPA before the final issuance of this General Permit, then the new criteria for aluminum shall apply and any new or more stringent limits (as presented in Attachment E) will not include a compliance schedule.

3 Available Dilution and Mixing Zones

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 (Q_d) and the critical flow in the receiving water upstream of the discharge (Q_s) as follows:

$$DF = (Q_s + Q_d) / Q_d$$

Where:

Q_s = upstream critical flow in million gallons per day (MGD)
Q_d = design flow in MGD

For freshwater rivers and streams, the Massachusetts 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)). 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, 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)).

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 water quality standards of Massachusetts 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) and the *Massachusetts Water Quality Standards Implementation Policy for Mixing Zones* (MassDEP, January 28, 1993). MassDEP is developing an interpretation of its mixing zone regulations relevant to lakes and reservoirs.

See Attachment E of the General Permit for a list of updated 7Q10 flows and dilution factors[5] for all eligible WWTFs. The period of record for the updated 7Q10 flows, unless otherwise noted, is April 1, 1991 through March 31, 2021 (*i.e.*, the most recent 30 climate years) in order to account for recent hydrological changes in the watershed and changing climatic conditions. These 7Q10 flows and corresponding dilution factors have been used by EPA, as described below, in evaluating reasonable potential and, in some cases, establishing facility-specific effluent limits as described below in this Fact Sheet and as specified in Attachment E of the General Permit.

Further, EPA notes that some eligible dischargers[6] to marine waters have dilution factors based on models done over 15 years ago. In order to ensure these discharges continue to be regulated in a manner that protects water quality standards, the General Permit requires these Permittees to conduct a new dilution model or dye study to determine a defensible dilution factor in the fifth year of this permit term. Each Permittee should coordinate with EPA and MassDEP in advance of conducting the model or study to confirm an appropriate methodology for this model or dye study. The results of the model or dye study should be submitted to EPA and MassDEP by the expiration date of the permit. EPA intends to validate and use the results of these new models or dye studies in the next permit reissuance.

4 Effluent Limitations

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 permit applications, monthly discharge monitoring reports [DMRs], annual reports, and/or whole effluent toxicity [WET] test reports) from July 2016 through June 2021 (*i.e.*, during the most recent 60-month "review period"). 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.

4.1 Effluent Flow

Part II of the draft General Permit includes effluent flow limitations equal to the design flow of the WWTF from which the discharge occurs. These effluent flow limitations are specified in

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[5] For eligible dischargers that have a currently effective individual permit that was issued within the past three years (i.e., since the beginning of 2019), EPA determined that it was not necessary or appropriate to reevaluate the 7Q10 flow and dilution factor. EPA will carry forward the previous 7Q10 flow and dilution factor into their authorization under the General Permit. EPA will reevaluate the 7Q10 flow and dilution factor in the next reissuance of this General Permit.

[6] These eligible dischargers are Plymouth, Newburyport, Fairhaven, Hull, Dartmouth and Marshfield.

Attachment E of the General Permit. The effluent flow limit is a rolling annual average limit.[7] The draft General Permit requires that flow be measured continuously, and the rolling annual average, monthly average, and the maximum daily flow must be reported in million gallons per day (MGD). The rolling annual average limit shall be calculated and reported as the arithmetic mean of the monthly average flows for the reporting month and the previous eleven months.

The draft General Permit also requires Permittees to submit to EPA and MassDEP a projection of loadings, a program for maintaining satisfactory treatment levels, and plans for facility improvements whenever the effluent flow exceeds 80 percent of the facility's design flow capacity for the previous calendar year (see Part III.A.6.f of the draft General Permit).

EPA notes that for the Uxbridge Sewer Commission WWTF the currently effective limits under their 2013 individual permit[8] are based on an effluent flow limit of 1.25 MGD and these limits will be carried forward for this WWTF in its initial authorization under the General Permit. However, EPA has added the 2013 individual permit to the administrative record for the development of this General Permit and based on that permit EPA also carries forward the revised limits that will potentially become effective on the earlier of (i) the date identified by the permittee that it expects to exceed the 1.25 MGD annual average flow, or (ii) 60 days after the first month in which the 1.25 MGD annual average flow is exceeded. EPA has confirmed that no other new or more stringent limits would be required at the design flow of 2.5 MGD based on all updated information.

4.2 BOD_5 or $CBOD_5$ and TSS

4.2.1.1 Concentration Limits

The draft General Permit includes average monthly and average weekly limitations for biochemical oxygen demand ("BOD_5") and total suspended solids ("TSS") of 30 mg/L and 45 mg/L, respectively, in accordance with the secondary treatment regulations for POTWs found at 40 CFR § 133.102(a) and (b). Carbonaceous biochemical oxygen demand ("$CBOD_5$") limitations may apply in lieu of BOD_5 limitations, as allowed under 40 CFR § 133.102(a)(4), if already included in a facility's existing NPDES permit. As such, the draft General Permit also includes average monthly and average weekly $CBOD_5$ limits of 25 mg/L and 40 mg/L, respectively, in accordance with the secondary treatment regulations for POTWs found at 40 CFR § 133.102(a)(4)(i) and (ii).

For Erving Center WWTP 2, the BOD_5 and TSS limits are unique based upon the unique industrial component of the facility. Therefore, these mass-based limits (without concentration-based limits) are carried forward from their recently-issued 2021 individual permit.

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[7] The unique flow limits in the existing individual permits for Adams, Belchertown, and Rockland are carried forward in this General Permit as monthly average limits. The justification for these unique limits is set forth in the record for the previous individual permit reissuances.

[8] https://www3.epa.gov/region1/npdes/permits/2013/finalma0102440permit.pdf

4.2.1.2 Mass Limits

In addition to concentration limits, the draft General Permit includes mass limits, pursuant to the requirements of 40 CFR § 122.45(f)(1). The mass limitations in the draft General Permit are derived using the facility's design flow and are therefore specific to each facility. The mass limitations are calculated as follows:

BOD_5 (or $CBOD_5$) and TSS Mass Loading Calculations:

Calculations of maximum allowable loads for average monthly and average weekly BOD_5 (or $CBOD_5$) and TSS are based on the following equation:

$$L = C_d * Q_d * 8.34$$

Where:

L = Maximum allowable load in lb/day
C_d = Maximum allowable effluent concentration for reporting period in mg/L (reporting periods are average monthly and average weekly)
Q_d = Annual average design flow of WWTF in MGD
8.34 = Factor to convert effluent concentration in mg/L and design flow in MGD to lb/day

4.3 Eighty-Five Percent (85%) BOD_5 and TSS Removal Requirement

In accordance with the provisions of 40 CFR §§ 133.102(a)(3), (a)(4)(iii) and (b)(3), the draft General Permit requires that the monthly average percent removal for BOD_5 (or $CBOD_5$) and TSS be not less than 85%.

4.4 pH

The pH limits in the draft General Permit were established to be consistent with the criteria for pH found in the Massachusetts water quality standards.

The Massachusetts water quality standards specify that the pH of Class B waters (freshwater) shall be within the range of 6.5-8.3 Standard Units (S.U.), and within 0.5 S.U. of the natural background range (see 314 CMR 4.05(3)(b)(3)); and that the pH of Class SA and SB waters (marine) shall be within the range of 6.5-8.5 S.U., and within 0.2 S.U. of the natural background range (314 CMR 4.05(4)(a)(3) and 4.05(4)(b)(3)).

The draft General Permit includes pH limit ranges consistent with these regulations based on the receiving water classification for each discharge. Additionally, six[9] eligible facilities currently have existing permits with pH ranges with an approved lower pH value of 6.0 S.U. These expanded pH ranges will be carried forward with an optional pH study (described in footnote 7

[9] These facilities include Concord, Plymouth, Orange, Marshfield, Uxbridge, and Easthampton (only at Outfall 001).

of Part II.A of the General Permit) that must be conducted within three years for these limits to be carried forward in the next permitting cycle.

4.5 Bacteria

The effluent limits to protect recreational uses (*E.* coli in fresh waters and enterococci in marine waters) are based on the geometric mean bacteria criteria at 314 CMR 4.05 and, for the maximum daily limit, on MassDEP implementation guidance.[10] Bacteria criteria to protect recreational uses may be applied on a seasonal basis at the discretion of MassDEP. See 314 CMR 4.05(3)(b)(4)(b), 4.05(4)(a)(4)(b), and 4.05(4)(b)(4)(b). Seasonal applicability of bacteria limits has been carried forward from current individual permits.

The effluent limits to protect shellfishing uses (fecal coliform in marine waters) are based on criteria at 4.05(4)(a)(4) and 4.05(4)(b)(4).

Table 1 summarizes the applicable bacteria limits.

Table 1 – Bacteria Limits

Indicator Organism	Receiving Water Classification	Discharge Limitation		
		Units	Average Monthly (geometric mean)	Maximum Daily
E. coli	B	colonies/100 mL	126	409
Enterococci	SA or SB	colonies/100 mL	35	104
Fecal Coliform	SA	organisms/100 mL	14	28
Fecal Coliform	SB	organisms/100 mL	88	260

Receiving water classifications for all eligible dischargers are provided in Attachment E of the General Permit. All *E. coli* limits and monitoring requirements shall apply from April 1 through October 31 unless a different season is specified in a permittee's most recent individual permit. All fecal coliform and enterococci limits and monitoring requirements shall apply year-round unless a season is specified in a permittee's most recent individual permit.

MassDEP promulgated final revised Surface Water Quality Standards (SWQS)[11], including revised bacteria criteria, on November 12, 2021. The revised SWQS still need to go through the EPA review and approval process before they can be used in NPDES permits.

However, as the revised bacteria criteria are less stringent than the current limits, these new bacteria criteria, even if approved by EPA before the issuance of this General Permit, would not result in any change to the bacteria limits. Rather, the more stringent limits described above are already effective for each facility within their individual permit and will be carried forward based on anti-backsliding regulations discussed in Section 2.6 above.

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[10] MassDEP, "Draft 6/25/2007 Guidance on Implementation of Proposed Primary Contact Recreation Bacteria in Massachusetts Surface Water Quality Standards, 314 CMR 4.00," 2007, p. 11, Table 2.

[11] See https://www.mass.gov/doc/314-cmr-4-massachusetts-surface-water-quality-standards/download

4.6 Total Residual Chlorine

For WWTFs that use chlorine disinfection, the total residual chlorine ("TRC") permit limits are included in the General Permit. TRC limits are based on the instream chlorine criteria defined in *National Recommended Water Quality Criteria: 2002*, EPA 822R-02-047 (November 2002), as adopted by MassDEP into the Massachusetts water quality standards at 314 CMR 4.05(5)(e). The instream criteria for chlorine are 11 µg/l (chronic) and 19 µg/l (acute) for freshwater discharges and 7.5 µg/L (chronic) and 13 µg/L (acute) for marine discharges. Because the upstream chlorine concentration is assumed to be zero, the water quality-based TRC limits are calculated as the criteria times the dilution factor, as follows:

Chronic criteria * dilution factor = Monthly Average limit

Acute criteria * dilution factor = Daily Maximum limit

These site-specific limits shall be included in each Permittee's authorization to discharge under the General Permit unless the facility does not utilize chlorine disinfection and, therefore, does not require TRC limits. If the limits based on the calculation above result in a less stringent limit than is currently required, the more stringent limit will be carried forward based on anti-backsliding regulations discussed in Section 2.6 above. If the appropriate water quality-based TRC limits are greater than 1.0 mg/L, a daily maximum limit of 1.0 mg/L shall be applied to the discharge in order to prevent acutely toxic impacts in the vicinity of the discharge.

Any more stringent TRC limits based on the development of this permit are summarized for each eligible WWTF in Attachment E of the General Permit.

4.7 Metals

Dissolved fractions of certain metals in water can be toxic to aquatic life. Therefore, there is a need to limit toxic metal concentrations in the effluent where aquatic life may be impacted. For the development of the General Permit, analyses were completed to evaluate whether there is reasonable potential for effluent discharges to cause or contribute to exceedances of the water quality criteria for aluminum, cadmium, copper, lead, nickel and zinc and/or to evaluate whether any existing limits in a facility's existing permit for these metals continue to be protective, given the updated upstream hydrologic and chemical characteristics of the receiving water.

4.7.1 Applicable Metals Criteria

State water quality criteria for cadmium, copper, lead, nickel and zinc are established in terms of dissolved metals. However, many inorganic components of domestic wastewater, including metals, are in particulate form, and differences in the chemical composition between the effluent and the receiving water affects the partitioning of metals between the particulate and dissolved fractions as the effluent mixes with the receiving water, often resulting in a transition from the particulate to dissolved form (*The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion* (USEPA 1996 [EPA-823-B96-007])). Consequently, quantifying only the dissolved fraction of metals in the effluent prior to discharge may not accurately reflect the biologically-available portion of metals in the receiving water. Regulations at 40 CFR § 122.45(c) require, with limited exceptions, that effluent limits for

metals in NPDES permits be expressed as total recoverable metals.

The criteria for cadmium, copper, lead, nickel and zinc are hardness-dependent using the equations in EPA's National Recommended Water Quality Criteria: 2002, which are incorporated into the Massachusetts WQS by reference. The estimated hardness of the receiving water downstream of the treatment plant is calculated using the critical low flow, the design flow of the treatment plant, and the median hardness for both the receiving water upstream of the discharge and the treatment plant effluent. Using the mass balance equation discussed in Appendix A, the resulting downstream hardness is calculated and used to determine the corresponding criteria.

Massachusetts aluminum criteria are not hardness-dependent and are expressed as total recoverable aluminum.

4.7.2 Reasonable Potential Analysis and Limit Derivation

To determine whether the effluent has the reasonable potential to cause or contribute to an exceedance above the in-stream water quality criteria for each metal, EPA uses the mass balance equation presented in Appendix A to project the concentration downstream of the discharge and, if applicable, to determine the limit required in the permit.

For any metal with an existing limit in the facility's existing permit, the same mass balance equation is used to determine if a more stringent limit would be required to meet WQS under current conditions. The limit is determined to be the more stringent of either (1) the existing limit or (2) the calculated effluent concentration (C_d) allowable to meet WQS based on current conditions.

See Attachment E of the General Permit for a summary of any newly established or more stringent effluent limits based on this analysis for each eligible WWTF.

4.7.3 Revised Aluminum and Cadmium Criteria

MassDEP promulgated final revised Surface Water Quality Standards (SWQS)[12], including revised metals criteria for aluminum and cadmium, on November 12, 2021. The revised SWQS still need to go through the EPA review and approval process before they can be used in NPDES permits.

In anticipation of this approval process happening before this General Permit is issued, EPA has determined how the revised aluminum and cadmium criteria, if approved by EPA as currently proposed by MassDEP, would impact the resulting aluminum and cadmium limits in the final General Permit. EPA notes that if the revised SWQS are not approved before this General Permit is issued, the changes described below will not be made to the final General Permit.

In applying the revised aluminum and cadmium criteria, EPA used the same mass balance

[12] https://www.mass.gov/doc/314-cmr-4-massachusetts-surface-water-quality-standards/download

equation presented in Appendix A to project the aluminum and cadmium concentrations downstream for each facility and compared this to the revised aluminum[13] and cadmium criteria to assess how the new criteria would change the results of each facility-specific analysis already conducted for aluminum and cadmium. Based on this analysis, EPA determined that the aluminum limits would be impacted at the following eight WWTFs: Northbridge, Medfield, Adams, Pepperrell, Ware, Greenfield, Belchertown, and Concord. Additionally, EPA determined that the cadmium limits would be impacted at the following WWTF: Northbridge. Therefore, EPA added two columns in Attachment E of the draft General Permit that include these new aluminum and cadmium limits based on the revised SWQS and EPA's analysis.

Further, the three-year compliance schedule included in Part III.F.3 of the General Permit would be removed from the final General Permit. This schedule is intended to provide time for the aluminum criteria to be approved, so it is not needed if the new criteria are already approved by EPA before permit issuance.

Finally, EPA notes that there are four eligible WWTFs (*i.e.*, Athol, Winchendon, Lee, and Maynard) that currently have an aluminum limit with a 3-year compliance schedule that would not be carried forward under this General Permit if (1) the revised SWQS are approved by EPA before this General Permit is issued and (2) the authorization under the General Permit is effective before the aluminum limit goes into effect. EPA confirmed that under the revised SWQS these facilities do not need an aluminum limit.

4.8 Ammonia

Nitrogen in the form of ammonia can reduce the receiving stream's dissolved oxygen concentration through nitrification and can be toxic to aquatic life, particularly at elevated temperatures.

The ammonia criteria in EPA's *National Recommended Water Quality Criteria,* 2002 (EPA 822-R-02-047) document are included by reference in the Massachusetts WQS (*See* 314 CMR 4.05(5)(e)). The freshwater acute criterion is dependent on pH and the freshwater chronic criterion is dependent on pH, temperature and whether early life stages of fish are present in the receiving water. The marine water quality criteria are dependent on pH and temperature.

In determining whether the discharge has the reasonable potential to cause or contribute to excursions above the instream water quality criteria for ammonia, EPA will use the mass balance equation presented in Appendix A for both warm and cold weather conditions to project the ammonia concentration downstream of the discharge. If there is reasonable potential, this mass balance equation will also be used to determine the limit that is required in the permit.

EPA notes that if a WWTF already has a limit in its existing permit for ammonia, the same mass balance equation from Appendix A is used to determine if a more stringent limit would be

[13] EPA conducted this analysis using the watershed defaults, EPA would consider calculating the criteria using the site-specific pH, DOC and hardness data if sufficient data is provided during the comment period for a particular receiving water.

required to meet WQS under current conditions. The limit is determined to be the more stringent of either (1) the existing limit or (2) the calculated effluent concentration (C_d) allowable to meet WQS based on current conditions.

To determine the applicable ammonia criteria, EPA must determine on a case-by-case basis (if applicable) the warm weather temperature (assume 25° C), cold weather temperature (assume 5° C), ambient pH (default of 7.0 S.U. unless site-specific ambient data available), salinity (default of 0 ppt for freshwater discharges and 30 ppt for marine discharges unless site-specific data available), and the presence/absence of salmonids and early life stages of fish in the receiving waters (determined for each receiving water). Based on this information, the applicable ammonia criteria can be used in the mass balance equation to perform a reasonable potential determination and, if necessary, establish effluent limits according to the procedure described in Appendix A.

See Attachment E of the General Permit for a summary of any newly established or more stringent effluent limits based on this analysis for each eligible WWTF.

Effluent and ambient monitoring for ammonia will continue to be required in the whole effluent toxicity tests.

4.8.1 Revised Ammonia Criteria

MassDEP promulgated final revised Surface Water Quality Standards (SWQS)[14], including revised ammonia criteria, on November 12, 2021. The revised SWQS still need to go through the EPA review and approval process before they can be used in NPDES permits.

In anticipation of this approval process happening before this General Permit is issued, EPA has determined how the revised ammonia criteria, if approved by EPA as currently proposed by MassDEP, would impact the resulting ammonia limits in the final General Permit. EPA notes that if the revised SWQS are not approved before this General Permit is issued, the changes described below will not be made to the final General Permit.

In applying the revised ammonia criteria, EPA used the same mass balance equation presented in Appendix A to project the ammonia concentration downstream for each facility and compared this to the revised ammonia criteria to assess how the new criteria would change the results of each facility-specific analysis already conducted for ammonia. Based on this analysis, EPA determined that the ammonia limits would be impacted at the following six WWTFs: Northbridge, Medfield, Belchertown, MWRA-Clinton, MFN Regional, and Bridgewater. Therefore, EPA added two columns in Attachment E of the draft General Permit that include these new ammonia limits based on the revised SWQS and EPA's analysis. Among these six WWTFs, only Medfield and Bridgewater are not expected to be in immediate compliance with these alternate ammonia limits (based on recent effluent data) and EPA has proposed a 2-year compliance schedule for these two WWTFs as described in Part III.F.1 of the draft General Permit.

[14] https://www.mass.gov/doc/314-cmr-4-massachusetts-surface-water-quality-standards/download

4.9 Total 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. Discharges from municipal and industrial wastewater treatment plants, agriculture runoff, and stormwater are examples of human-derived (*i.e.*, anthropogenic) sources of nutrients in surface waters. See generally, *Nutrient Criteria Technical Guidance Manual – Rivers and Streams*, EPA July 2000 [EPA-822-B-00-002], Chapters 1 and 3.

The MA WQS under 314 CMR 4.05(5)(c) requires that, unless naturally occurring, surface waters must be free from nutrients that cause or contribute to impairment of the existing or designated uses, and the concentration of phosphorus may not exceed site specific criteria developed in a TMDL. Nutrients are also prohibited in concentrations that would cause or contribute to cultural eutrophication. Cultural eutrophication also results in exceedances of other nutrient-related water quality standards such as low dissolved oxygen, decreased water clarity, objectionable odors, and surface scum. The MA WQS at 314 CMR 4.05(3)(b)(1) requires that dissolved oxygen not be less than 6.0 mg/L in cold water fisheries or 5.0 mg/L in warm water fisheries. Further, the MA WQS at 4.05(3)(b)(5), (6) and (8) state that waters must be free from "floating, suspended, and settleable solids," free from "color and turbidity in concentrations or combinations that are aesthetically objectionable…", and have no taste and odor "in such concentrations or combinations that are aesthetically objectionable, that would impair any use assigned to this Class, or that would cause tainting or undesirable flavors in the edible portions of aquatic life." To prevent cultural eutrophication, the MA WQS at 4.05(5)(c) states that "Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs and BAT for non POTWs, to remove such nutrients to ensure protection of existing and designated uses." Also see Part 2.2.2 of this Fact Sheet above regarding antidegradation and existing uses which may be impacted by nutrient over-enrichment.

When permitting nutrient discharges, EPA analyzes available information from a reasonably conservative standpoint, as it regards one key function of a nutrient limit as preventative. This protective approach is appropriate because, once begun, the cycle of eutrophication can be difficult to reverse due to the tendency of nutrients to be retained in the sediments. For this reason, time is of the essence when permitting for nutrients, so EPA acts on the best information reasonably available when developing the draft General Permit, and does not generally delay permit issuance pending collection of new data or development of new models. This approach is also consistent with the requirement for NPDES permits to be revisited and reissued at regular

intervals, with permit terms not to exceed five years.

When translating narrative phosphorus criteria into numeric values (and establishing WQBELs, if necessary), EPA looks to a wide range of materials, including nationally recommended criteria and other relevant materials, such as EPA nutrient technical guidance and information published under Section 304(a) of the CWA, peer-reviewed scientific literature and site-specific surveys and data to determine instream targets that are protective of water quality. See 40 CFR § 122.44(d)(1)(vi)(A), (B).

EPA has produced several guidance documents, described below, that recommend a range of total ambient phosphorus concentrations that are sufficiently stringent to control cultural eutrophication and other adverse nutrient-related impacts, with 0.1 mg/L representing the upper end of this range. These guidance documents recommend protective in-stream phosphorus concentrations based on two different analytical approaches. An effects-based approach provides a threshold value above which adverse effects (*i.e.*, water quality impairments) are likely to occur. This approach applies empirical observations of a causal variable (*i.e.*, phosphorus) and a response variable (*i.e.*, chlorophyll-a as a measure of algal biomass) associated with designated use impairments. Alternatively, reference-based values are statistically derived from a comparison within a population of rivers in the same ecoregion class. They are a quantitative set of river characteristics (physical, chemical and biological) that represent conditions in waters in that ecoregion that are minimally impacted by human activities (*i.e.*, reference conditions), and thus by definition representative of water without cultural eutrophication. Dischargers in Massachusetts are located within either Ecoregion VII, Nutrient-Poor, Largely Glaciated Upper Midwest and Northeast or Ecoregion XIV, Eastern Coastal Plains. The recommended total phosphorus criteria for these ecoregions are 10 µg/L and 31.25 µg/L, respectively. While reference conditions reflect in-stream phosphorus concentrations that are sufficiently low to meet the requirements necessary to support designated uses, they may also represent levels of water quality beyond what is necessary to support such uses.

EPA follows an effects-based approach. EPA's 1986 *Quality Criteria for Water* (the "Gold Book") recommends maximum threshold concentrations that are designed to prevent or control adverse nutrient-related impacts from occurring. Specifically, the Gold Book recommends in-stream phosphorus concentrations of no greater than 0.05 mg/L in any stream entering a lake or reservoir, 0.1 mg/L for any stream not discharging directly to lakes or impoundments, and 0.025 mg/L within a lake or reservoir.

The Gold Book recommended value of 0.1 mg/L is coterminous with the range of published, peer-review values presented in a more recent EPA technical guidance manual, *Nutrient Criteria Technical Guidance Manual – Rivers and Streams*, EPA July 2000 [EPA-822-B-00-002], Chapter 7 Table 4 (a simplified version of this table is shown as Table 2 below), which contains recommended threshold ambient concentrations (all more stringent than 0.1 mg/L) drawn from the scientific literature that are sufficiently stringent to control periphyton and plankton (two types of aquatic plant growth associated with eutrophication). This guidance indicates that in-stream phosphorus concentrations between 0.01 mg/L and 0.09 mg/L will be sufficient to control periphyton growth and concentrations between 0.035 mg/L and 0.070 mg/L will be sufficient to control plankton.

Table 2 – Recommended Nutrient Levels to Prevent Eutrophic Impairment

PERIPHYTON Maximum			
TP (µg/L)	**Chlorophyll a (µg/L)**	**Impairment Risk**	**Source**
38-90	100-200	nuisance growth	Dodds et al. 1997
75	200	eutrophy	Dodds et al. 1998
20	150	nuisance growth	Clark Fork River Tri-State Council, MT
20		*Cladophora* nuisance growth	Chetelat et al. 1999
10-20		*Cladophora* nuisance growth	Stevenson unpubl. Data
PLANKTON Mean			
TP (µg/L)	**Chlorophyll a (µg/L)**	**Impairment Risk**	**Source**
42	8	eutrophy	Van Nieuwenhuyse and Jones 1996
70	15	chlorophyll action level	OAR 2000
35	8	eutrophy	OECD 1992 (for lakes)

The published, peer-reviewed phosphorus targets are thus 0.1 mg/L or below, irrespective of the methodological approach employed. In addition to opting for the less stringent of the available approaches (*i.e.*, effects-based in favor of reference-based), EPA has chosen to apply the upper end of the range of all available published nutrient thresholds. However, as the Gold Book notes, there are natural conditions of a water body that can result in either increased or reduced eutrophic response to phosphorus inputs; in some waters more stringent phosphorus reductions may be needed, while in some others a higher total phosphorus threshold could be assimilated without inducing a eutrophic response. EPA is not aware of any site-specific factors relevant to the receiving waters that would result in the waters being unusually more or less susceptible to phosphorus loading.

Prior to a consideration of site-specific information and data relevant to the discharge, EPA observes that its overall approaches to establishing both phosphorus and nitrogen effluent limitations in NPDES permits have been extensively adjudicated over the past fifteen years, and they have been found to be reasonable and upheld by both the Environmental Appeals Board and the United States Court of Appeals for the First Circuit. Petitions for certiorari have twice been denied by the United States Supreme Court for Region 1 nutrient permitting (total phosphorus and total nitrogen) decisions under 40 CFR § 122.44(d)(1)(vi) in recent years. Should the public wish to review these decisions, they are available here:

City of Taunton v. EPA (EAB and First Circuit, Supreme Court cert. denied)

https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/Case~Name/0A045314B61E682785257FA80054E600/$File/Denying%20Review%20Vol-17.pdf

https://yosemite.epa.gov/oa/eab_web_docket.nsf/A568248B44D1C63785258053005AEDD0/$File/Opinion%207.9.2018%20(46%20pages).pdf

Upper Blackstone Water Pollution Abatement Dist. v. EPA (EAB and First Circuit, Supreme Court cert. denied)

https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/Case~Name/A44361EC4C211B0685257865006EA1EC/$File/Upper%20Blackstone.pdf

https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/2D0D249E441A18F185257B6600725F04/$File/October%2018%202017.pdf

In re City of Lowell, MA (2020)

https://yosemite.epa.gov/OA/EAB_WEB_Docket.nsf/Filings%20By%20Appeal%20Number/6D63DE203BB980D2852585960069906D/$File/City%20of%20Lowell.pdf

In re Town of Newmarket Wastewater Treatment Plant (2013)

https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/Case~Name/97CCD304C9B7E58585257C3500799108/$File/Newmarket%20Decision%20Vol%2016.pdf

In re City of Attleboro MA Wastewater Treatment Plant (2009)

https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/NPDES%20Permit%20Appeals%20(CWA)/D506EBEE22A1035E8525763300499A78/$File/Attleboro.pdf

EPA adheres to the overarching decision-making framework for nutrient permitting established by these precedents: administrative and judicial bodies have expressly found EPA's approach to be reasonable under the Act and, for its part, EPA has found the approach in its experience to be workable, expeditious, as well as demonstrably effective in addressing nutrient pollution, in a manner that is neither overly stringent, nor overly lax. While drawing on information from the scientific literature and national and regional EPA guidance, EPA also accounts for site-specific facts and circumstances surrounding the discharge and receiving waters in arriving at the permit result. EPA acknowledges that there are a range of alternative technical approaches and opinions when permitting for nutrients to ensure that uses for the waters designated by the state for its citizens are achieved; while some of these may have merit, EPA's existing approach has been proven to have merit and provides predictability for the regulated community.

For all eligible facilities under this General Permit that discharge to freshwater, EPA has determined that the applicable Gold Book threshold is 0.1 mg/L as part of the reasonable potential determination procedure described in Appendix A.[15]

In determining whether the discharge has the reasonable potential to cause or contribute to

[15] EPA notes that the only exception to this is for any facility where EPA has determined that the Gold Book threshold of 0.05 mg/L should apply in the existing permit based on the discharge being immediately upstream of an impoundment. Lenox is the only eligible discharger where EPA has made this determination. The limit for Lenox of 0.22 mg/L (based on the 0.05 mg/L target) will be carried forward in this General Permit.

excursions above the instream water quality criteria for phosphorus, EPA used the mass balance equation presented in Appendix A to project the phosphorus concentration downstream of the discharge. If there is reasonable potential, this mass balance equation is also used to determine the limit that is required in the permit.

EPA notes that if a WWTF already has a limit in its existing permit for phosphorus, the same mass balance equation from Appendix A is used to determine if a more stringent limit would be required to meet WQS under current conditions. The limit is determined to be the more stringent of either (1) the existing limit or (2) the calculated effluent concentration (C_d) allowable to meet WQS based on current conditions.

Additionally, EPA notes that to determine whether the existing limits of 0.2 mg/L for facilities in the Blackstone River watershed[16] are sufficient to ensure that the instream level of 0.1 mg/L in the Blackstone River is met under low flow conditions, EPA calculated the projected instream concentration assuming all the contributing point sources to the watershed are discharging at their effluent limits under design flow conditions. It should be noted that this does not represent the current discharge concentrations to the Blackstone River, which are higher, but rather the expected discharge concentrations after the facilities are brought into compliance with their permit limits. Phosphorus levels in the base flow in the Blackstone River are also included, with a background concentration of 0.04 mg/l based on monitoring data upstream of the Upper Blackstone Water Pollution Abatement District collected by MassDEP in 2002 (near 7Q10 conditions). *See* MassDEP, Blackstone River 2003-2007 Water Quality Assessment Report, at F-8 (2008). Therefore, EPA determined that the three WWTFs discharging into the Blackstone River watershed should carry forward their limits of 0.2 mg/L under the General Permit.

See Attachment E of the General Permit for a summary of any newly established or more stringent effluent limits based on this analysis for each eligible WWTF. If EPA determined that a Permittee will likely not be in compliance with a new or more stringent effluent limit upon the effective date of the General Permit, then a compliance schedule is included for that limit in Part III.F of the General Permit.

EPA notes that no compliance schedule is included for the proposed modified phosphorus limit for Bridgewater. The facility currently is operating consistent with an administrative order that provides a schedule to achieve their current phosphorus limits. By its terms, the current order is not applicable if the City no longer has coverage under its Individual NPDES Permit. Given the complexity associated with an ongoing administrative order combined with a more stringent limit, EPA has not proposed a compliance schedule for this facility in the General Permit but rather encourages Bridgewater to reach out to EPA's Enforcement and Compliance Assurance Division (ECAD) now to discuss a new administrative order with a schedule to achieve the proposed phosphorus limit.

Finally, all Permittees discharging to freshwater with a dilution factor above 1.1 and below 50

[16] These facilities include Uxbridge, Northbridge, and Grafton.

and that do not already have a phosphorus limit of 0.1 mg/L[17], shall develop and implement a sampling and analysis plan for biennially collecting monthly samples at a location upstream of the facility. Samples shall be collected once per month, from May through September, every other calendar year starting on the calendar year following the date of permit issuance. Sampling shall be conducted on any calendar day that is preceded by at least 72 hours without rainfall of 0.1 inches of rainfall or greater. A sampling plan shall be submitted to EPA and MassDEP at least three months prior to the first planned sampling date as part of a Quality Assurance Project Plan for review and State approval.

4.10 Total Nitrogen

Excessive nitrogen loadings to waterways can cause water quality problems at estuaries. Several estuaries in New England, most notably Long Island Sound, Narragansett Bay, and Buzzards Bay experience eutrophication and are subject to Total Maximum Daily Loads ("TMDLs") to reduce nutrient enrichment. If a Permittee discharges to a watershed that has an effective TMDL, the applicable Waste Load Allocation ("WLA") for that facility must be included in the authorization to discharge under the Medium WWTF GP.

EPA is also concerned about nitrogen discharges to other estuaries, such as the Merrimack River estuary, that are not subject to TMDLs but may be experiencing nitrogen enrichment. To ensure EPA has enough information to properly address this concern in the future, the General Permit includes year-round monitoring and reporting requirements for total nitrogen for all eligible dischargers. The frequency of such monitoring is once per week from April through October and once per month from November through March. In the next permit reissuance or in another permitting action in the future, EPA plans to use this data, along with all other available information at that time, to determine if numeric nitrogen limits are necessary to ensure the protection of water quality standards.

4.10.1 Long Island Sound Watershed

All eligible facilities discharging into the Long Island Sound (LIS) watershed will have a numeric limit and a requirement to optimize nitrogen removal. See Appendix B for more details and a table of all dischargers into the LIS watershed.

EPA notes that currently nine of the 17 eligible dischargers within the LIS watershed do not have a numeric limit and those numeric limits will be established under this General Permit. As described in Appendix B of this Fact Sheet and given that all eligible facilities have a design flow between 1 MGD and 5 MGD, the numeric limits will be based on the equation: Q_D (MGD) x 10 mg/L x 8.34. The resulting limits are presented in Table 3 below and are included in Part

[17] These specific exclusions were chosen in order to only require ambient TP monitoring for facilities where the data is likely to be useful in future permit development. For facilities outside the range of dilution or who already have a limit of 0.1 mg/L, the ambient data is unlikely to significantly impact the next permit reissuance and the ambient monitoring is therefore not required for those facilities. Attachment E of the Draft General Permit indicates which specific WWTFs this ambient monitoring provision applies based on these criteria.

III.G and Attachment E of the General Permit.

Table 3 – New Total Nitrogen Limits

Permittee	Rolling Annual Average Total Nitrogen Limit
Warren WWTF	125 lb/day
Ware WWTP	83 lb/day
Greenfield WPCP	283 lb/day
Belchertown WWTP	83 lb/day
South Hadley WWTP	350 lb/day
Easthampton WWTF	317 lb/day
Spencer WWTP	90 lb/day
Sturbridge WPCF	108 lb/day
Southbridge WWTP	314 lb/day

The total nitrogen limit for Easthampton is the total allowable mass discharge from both Outfall 001 and 002 combined, given that both outfalls are within the Long Island Sound watershed.

The total nitrogen limit for Spencer shall be based on influent flow rather than effluent flow, given that a significant portion of flow is discharged through the facility's wetland beds. This unique requirement is also included in the facility's recent 2019 individual permit and is carried forward into the General Permit for the same justification as described in the record for that permit.

See Attachment E of the General Permit for a complete summary of any newly established or more stringent effluent limits for each eligible WWTF. If EPA determined that a Permittee will likely not be in compliance with any new or more stringent effluent limit upon the effective date of the General Permit, then a compliance schedule is included for that limit in Part III.F of the General Permit.

4.10.2 Blackstone River Watershed, Taunton River Watershed, Plymouth WWTP and Fairhaven WPCF

All eligible facilities discharging into the Blackstone River watershed, Taunton River watershed, as well as the Plymouth WWTP and Fairhaven WPCF have a requirement to optimize nitrogen removal presented in Part III.G of the General Permit. For each of these dischargers, a nitrogen optimization requirement (either year-round or seasonal) is already included in their individual permit and is therefore carried forward under this General Permit. Each of these optimization requirements were included in the respective individual permits to protect WQS in the respective receiving waters. Therefore, these requirements are necessary both to continue to protect relevant WQS in the respective receiving waters and to ensure the General Permit complies with anti-backsliding requirements described in Part 2.6 of this Fact Sheet.

4.11 Whole Effluent Toxicity

Sections 402(a)(2) and 308(a) of the CWA provide EPA and States with the authority to require toxicity testing. Section 308 specifically describes biological monitoring methods as techniques that may be used to carry out objectives of the CWA. Whole effluent toxicity (WET) testing is

conducted to ensure that the additivity, antagonism, synergism and persistence of the pollutants in the discharge do not cause toxicity, even when the pollutants are present at low concentrations in the effluent. The inclusion of WET requirements in the General Permit will assure that the facility does not discharge combinations of pollutants into the receiving water in amounts that would affect aquatic life or human health.

In addition, under § 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on WQSs. Under certain narrative State WQSs, and §§ 301, 303 and 402 of the CWA, EPA and the States may establish toxicity-based limitations to implement the narrative "no toxics in toxic amounts". 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."*

National studies conducted by the EPA have demonstrated that domestic sources, as well as industrial sources, contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents, aromatic hydrocarbons and others. Some of these constituents may cause synergistic effects, even if they are present in low concentrations. Because of the source variability and contribution of toxic constituents in domestic and industrial sources, EPA assumes that there is a reasonable potential for all WWTF discharges with a dilution factor below 1,000 that are eligible for coverage by this permit to cause or contribute to an exceedance of the "no toxics in toxic amounts" narrative water quality standard.

In accordance with EPA Region 1 and MassDEP[18] current toxic policies, whole effluent chronic effects are regulated by limiting the highest measured continuous concentration of an effluent that causes no observed chronic effect on a representative standard test organism, known as the chronic No Observed Effect Concentration (C-NOEC). Whole effluent acute effects are regulated by limiting the concentration that is lethal to 50 % of the test organisms, known as the LC_{50}. Therefore, an LC_{50} limit equal to 100 % or ≥ 50 % means that a sample comprised of 100 % or ≥ 50 % effluent, respectively, shall not cause mortality to more than 50 % of the test organisms.

The draft General Permit requires WET testing frequency and limits as determined by dilution factor, as follows:

- ≥ 1 and < 20 — 4 per year (C-NOEC ≥ 100 % / DF and LC_{50} = 100 %)
- ≥ 20 and < 100 — 4 per year (LC_{50} ≥ 100%)
- ≥ 100 — 2 per year (LC_{50} ≥ 50%)

The draft General Permit requires facilities that discharge to freshwater to conduct WET tests using the daphnid (*Ceriodaphnia dubia*) and the fathead minnow (*Pimephales promelas*) as test species. Facilities that discharge to marine waters are to conduct WET tests using the mysid shrimp (*Mysidopsia bahia*) and the inland silverside (*Menidia beryllina*) as test species.

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[18] *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters.* February 23, 1990.

However, EPA acknowledges that some of the WWTFs eligible for coverage under this General Permit have previously been authorized for a reduction in either frequency or number of species, or both, based on a site-specific analysis of most sensitive species, effluent variability, etc. Therefore, EPA will apply the frequency and species listed above based on design flow unless a WWTF's current individual permit is less stringent, in which case the less stringent requirements will be carried forward in the authorization to discharge under this General Permit. Additionally, previously approved species substitutions are also carried forward. Any more stringent WET limits based on the development of this permit are listed in Attachment E of the General Permit.

The WET limitations in the draft General Permit are the same as or more stringent than those in the existing permits, and so are consistent with the anti-backsliding requirements found at 40 CFR § 122.44(l).

Toxicity testing must be performed in accordance with the updated EPA Region 1 WET test procedures and protocols specified in Attachments A and B (for freshwater discharges) or Attachments C and D (for marine discharges) of the General Permit.

In addition, 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. Since aluminum monitoring is required as part of each WET test, an accompanying new testing and reporting requirement for DOC, in conjunction with each WET test, is warranted for freshwater discharges in order to assess potential impacts of aluminum in the receiving water.

4.12 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.[19] 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.

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)

[19] 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

- 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.

Since PFAS chemicals are persistent in the environment and may lead to adverse human health and environmental effects, the draft General Permit requires that the facilities conduct quarterly influent, effluent and sludge sampling for PFAS chemicals currently regulated by the state[20] and annual sampling of certain industrial users, the first full calendar quarter after the effective date of the authorization to discharge under the General Permit.

The purpose of this monitoring and reporting requirement is to better understand potential discharges of PFAS from this facility and to inform future permitting decisions, including the potential development of water quality-based effluent limits on a facility-specific basis. 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

[20] Additionally, EPA will require that each facility report the results of additional PFAS analytes not yet regulated by the state but included in the analytical method. Draft Method 1633 for analyzing PFAS requires analysis of many PFAS analytes, not just the six regulated by the state. Therefore, EPA is requiring that these additional results be reported in NetDMR given that these full results may be useful in future permit reissuances. EPA notes that this does not result in any additional cost to the Permittees as these full results will be included in the laboratory reports even if the Permittee only needed to report the six analytes listed above and the Permittee must simply report them all in their electronic DMR each monitoring period. A list of analytes to be reported in NetDMR can be found in Attachment H of the draft General Permit.

> 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—
>
> > (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;".

EPA notes that there is currently not an analytical method approved in 40 CFR Part 136 for PFAS. As stated in 40 CFR § 122.44(i)(1)(iv)(B), 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. Therefore, the General Permit specifies that until there is an analytical method approved in 40 CFR Part 136 for PFAS, monitoring shall be conducted using Draft Method 1633.

In October 2021, EPA published a PFAS Strategic Roadmap[21] that described EPA's commitments to action for 2021 through 2024. This roadmap includes a commitment to issue new guidance recommending PFAS monitoring in both state-issued and federally-issued NPDES permits using EPA's recently published analytical method 1633. In anticipation of this guidance, EPA has included PFAS monitoring in the General Permit using analytical method 1633.

Draft Method 1633 is currently a single lab-validated method. EPA anticipates the method will be multi-lab validated by the end of 2022.[22] Therefore, EPA expects that by the time the PFAS monitoring required under this General Permit begins (*i.e.*, the first full calendar quarter after the effective date of the authorization to discharge under the General Permit), the method is likely to have already been multi-lab validated. If the PFAS monitoring requirement begins before Draft Method 1633 is multi-lab validated, the current single-lab validated Draft Method 1633 shall be used at that time, and then the multi-lab validated Draft Method 1633 shall be used once it is available.

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[21] EPA's October 2021 PFAS Strategic Roadmap can be found at: https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024.

[22] For more information on Draft Method 1633, see https://www.epa.gov/cwa-methods/cwa-analytical-methods-and-polyfluorinated-alkyl-substances-pfas.

4.13 Industrial Users and Industrial Pretreatment Program

4.13.1 Industrial Users

The following applies to all dischargers that are not required to conduct an industrial pretreatment program, as identified in Attachment E of the General Permit.

Part III.C.1 of the General Permit includes conditions that are necessary to allow EPA and MassDEP to ensure that pollutants discharged to a facility by an industrial user will not pass through the facility and cause violations of water quality standards and/or sludge use and disposal difficulties, or cause interference with the operation of the treatment works. The General Permit requires Permittees to notify EPA and MassDEP whenever a process wastewater discharge to a facility from an industrial user within a primary industry category is planned or if there is any substantial change in the volume or character of pollutants being discharged into the facility by a source that was discharging at the time of the effective date of permit coverage. The General Permit requires Permittees to report to EPA and MassDEP the name(s) of all industrial users subject to Categorical Pretreatment Standards under 40 CFR § 403.6 and 40 CFR Chapter I, Subchapter N (Parts 405-415, 417-430, 432-447, 454, 455, 457-461, 463-469, and 471 as amended) who commence discharge to the facility after the effective date of permit coverage, and to forward any original pretreatment reports submitted by industrial users within ninety (90) days of their receipt to EPA and copy MassDEP in accordance with Part V of the General Permit.

4.13.2 Industrial Pretreatment Program

The following applies to all dischargers that are required to conduct an industrial pretreatment program, as identified in Attachment E of the General Permit.

The Permittee is required to administer a pretreatment program under 40 CFR part 403. *See also* CWA § 307; 40 CFR 122.44(j). The Permittee's pretreatment program received EPA prior approval and the pretreatment program requirements were incorporated into the previous permit, which were consistent with that approval and federal pretreatment regulations in effect when the permit was issued.

The Federal Pretreatment Regulations in 40 CFR part 403 were amended in October 1988, in July 1990, and again in October 2005. Those amendments established new requirements for implementation of pretreatment programs. Upon reissuance of this NPDES permit, the permittee is obligated to modify its pretreatment program to be consistent with current Federal Regulations. The activities that the permittee must address include, but are not limited to, the following: 1) develop and enforce EPA-approved specific effluent limits (technically-based local limits); 2) revise the local sewer-use ordinance or regulation, as appropriate, to be consistent with Federal Regulations; 3) develop an enforcement response plan; 4) implement a slug control evaluation program; 5) track significant noncompliance for industrial users; and 6) establish a definition of and track significant industrial users.

These requirements are necessary to ensure continued compliance with the POTW's NPDES permit and its sludge use or disposal practices.

In addition to the requirements described above, the General Permit requires the Permittee to submit to EPA in writing, within 180 days of the permit's effective date, a description of proposed changes to permittee's pretreatment program deemed necessary to assure conformity with current federal pretreatment regulations. These requirements are included in the General Permit to ensure that the pretreatment program is consistent and up-to-date with all pretreatment requirements in effect. Lastly, the Permittee must submit, annually by March 1st, a pretreatment report detailing the activities of the program for the twelve-month period ending 60 days prior to the due date.

4.14 Sludge Conditions

The General Permit requires that the Permittee comply with all existing federal and state laws that apply to sewage sludge use and disposal practices and with the Clean Water Act Section 405(d) technical standards (see 40 CFR Section 503).

Domestic sludge which is land applied, disposed of in a surface disposal unit, or fired in a sewage sludge incinerator is subject to federal 40 CFR Part 503. Part 503 regulations have a self-implementing provision; however, the CWA requires their implementation through permits. Domestic sludge that is disposed in municipal solid waste landfills is in compliance with Part 503 regulations provided the sludge meets the quality criteria of the landfill and the landfill meets the requirements of 40 CFR Part 258 (Criteria for Municipal Solid Waste Landfills).

The General Permit has been conditioned to ensure that sewage sludge use and disposal practices meet the CWA Section 405(d) Technical Standards. Which of the 40 CFR Part 503 requirements apply to the Permittee will depend upon the use or disposal practice followed and upon the quality of material produced by a facility. The EPA Region 1 guidance document, EPA Region 1 - NPDES Permit Sludge Compliance Guidance (EPA, November 4, 1999), may be used by the Permittee to assist in determining the applicable requirements.[23]

4.15 Infiltration/Inflow (I/I)

Infiltration is groundwater that enters the collection system though physical defects such as cracked pipes, or deteriorated joints. Inflow is extraneous flow entering the collection system through point sources such as roof leaders, yard and area drains, sump pumps, manhole covers, tide gates, and cross connections from storm water systems. Significant I/I in a collection system may displace sanitary flow, reducing the capacity and the efficiency of the treatment works and may cause bypasses to secondary treatment. It greatly increases the potential for sanitary sewer overflows (SSOs) in separate systems, and combined sewer overflows (CSOs) in combined systems.

The General Permit includes a requirement for the Permittee to control infiltration and inflow (I/I) within the sewer collections system it owns and operates. The Permittee shall develop an I/I removal program commensurate with the severity of I/I in the collection system. This program may be scaled down in sections of the collection system that have minimal I/I.

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[23] This guidance document is available upon request from EPA Region I and may also be found at: http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf

4.16 Operation and Maintenance of the Sewer System

The standard permit conditions for 'Proper Operation and Maintenance', found at 40 CFR § 122.41(e), require the proper operation and maintenance of permitted wastewater systems and related facilities to achieve permit conditions. The requirements at 40 CFR § 122.41(d) impose a 'duty to mitigate' upon the Permittee, which requires that "all reasonable steps be taken to minimize or prevent any discharge violation of the permit that has a reasonable likelihood of adversely affecting human health or the environment. EPA maintains that an I/I removal program is an integral component of ensuring permit compliance with the requirements of the permit under the provisions at 40 CFR § 122.41(d) and (e).

General requirements for proper operation and maintenance, and mitigation have been included in Part VII of the General Permit. Specific permit conditions have also been included in Parts III.A. and III.B. of the General Permit. These requirements include mapping of the wastewater collection system, preparing and implementing a collection system operation and maintenance plan, reporting of unauthorized discharges including SSOs, maintaining an adequate maintenance staff, performing preventative maintenance, controlling inflow and infiltration to separate sewer collection systems (combined systems are not subject to I/I requirements) to the extent necessary to prevent SSOs and I/I related effluent violations at the Wastewater Treatment Facility and maintaining alternate power where necessary. These requirements are included to minimize the occurrence of permit violations that have a reasonable likelihood of adversely affecting human health or the environment.

If any of these requirements are not included in a facility's existing permit, EPA has determined that these additional requirements are necessary to ensure the proper operation and maintenance of the collection system and has included schedules for completing these requirements listed in Attachment E of the General Permit. For any permittees or co-permittees that have already completed these requirements, Attachment E indicates "Done" and these permittees must continue to maintain compliance with these requirements and are not required to resubmit the collection system map or O&M Plan. For any permittees or co-permittees that have not completed these requirements, the compliance schedule listed in Attachment E of the General Permit applies to the relevant submittal. If a permittee or co-permittee are currently subject to a compliance schedule in their existing individual permit, the relevant deadlines have been carried forward and listed in Attachment E of the General Permit.

Because certain municipalities own and operate collection systems that discharge to one or more of the facilities covered by this General Permit, these municipalities have been included as co-permittees for the specific permit requirements discussed in this section above. The historical background and legal framework underlying this co-permittee approach is set forth in Appendix C to this Fact Sheet, EPA Region 1 NPDES Permitting Approach for Publicly Owned Treatment Works that Include Municipal Satellite Sewage Collection Systems. The specific municipalities identified as co-permittees for each facility (if any) are listed in Appendix E of the General Permit.

Once the General Permit is finalized, EPA will assign each co-permittee a unique authorization number for purposes of reporting (using NetDMR through EPA's Central Data Exchange, as specified in Part V.1 of the General Permit) in accordance with the requirements in Parts II.C,

III.A and III.B. of the General Permit.

4.17 Standard Conditions

The standard conditions of the permit are based on 40 CFR § 122, Subparts A, C, and D and 40 CFR § 124, Subparts A, D, E, and F and are consistent with management requirements common to other permits.

5 Obtaining Authorization to Discharge

5.1 Obtaining Coverage

To obtain coverage under the Medium WWTF GP, regulations at 40 CFR § 122.28(b)(2) provide three distinct options found in subparts (i), (v), and (vi). Subpart (i) indicates that eligible dischargers may submit a notice of intent (NOI) to be covered by the General Permit. Subpart (v) indicates that a discharger may be authorized under the General Permit without a notice of intent when EPA determines a NOI requirement would be inappropriate. Subpart (vi) indicates that EPA may notify a discharger that it is covered by a General Permit even if the discharger has not submitted a NOI to be covered.

Among these three options, EPA notes that the language of subpart (v) specifically excludes "publicly owned treatment works" (POTWs) from being authorized by means of this option. Given that most of the facilities eligible for coverage under this General Permit are POTWs, EPA must provide authorization to discharge by means of either subpart (i) or subpart (vi), or both. EPA has determined that both subpart (i) and subpart (vi) are appropriate options to obtaining coverage for all eligible dischargers listed in Attachment E of the General Permit, as specified below.

To obtain coverage under the General Permit, facilities identified in Attachment E of the General Permit may, at their election, submit a Notice of Intent (NOI) to EPA **within 30 days of the effective date of the General Permit** in accordance with 40 CFR § 122.28(b)(2)(i) & (ii). The contents of the NOI shall include at a minimum, the legal name and address of the owner or operator, the facility name and address, type of facility or discharges, the receiving stream(s) and be signed by the operator in accordance with the signatory requirements of 40 CFR § 122.22, including the certification statement found at § 122.22(d), as follows:

> *I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

All NOIs must be submitted to EPA either electronically to R1NPDESReporting@epa.gov (Note: electronic submittals must include electronic signature) or physically to the following address:

United States Environmental Protection Agency
ATTN: Municipal Permits Section
5 Post Office Square – Suite 100
Mail Code – 06-1
Boston, Massachusetts 02109-3912

Alternately, the Director may notify a discharger that it is covered by this General Permit, even if the discharger has not submitted a notice of intent to be covered in accordance with 40 CFR § 122.28(b)(2)(vi). EPA has determined that the eligible dischargers listed in Attachment E of the General Permit may be authorized to discharge under the General Permit by this type of notification. Such authorization to discharge will be effective upon the date indicated in written notice from EPA.

Facilities to be covered under this General Permit will maintain coverage under their existing individual permits until receiving written notification from EPA of authorization to discharge under the Medium WWTF GP. Such authorization will be effective upon the date indicated in written notice from EPA. As a precondition to obtaining authorization to discharge under the Medium WWTF GP, authorization to discharge pursuant to their individual permits will be removed using appropriate procedures under 40 CFR Part 124. Therefore, authorization to discharge under the Medium WWTF GP will be subject to completion of appropriate 40 CFR Part 124 proceedings and will be effective upon the date indicated in written notice from EPA.

5.2 When the Director May Require Application for an Individual NPDES Permit

The Director may require any operator authorized by or requesting coverage under this general permit to apply for and obtain an individual NPDES permit. Any interested person may petition the Director to take such action based on 40 CFR § 122.28(b)(3).

5.3 When an Individual Permit May Be Requested

In accordance with 40 CFR § 122.28(b)(3)(iii), any owner or operator authorized by this General Permit may request to be excluded from the coverage of this General Permit. The owner or operator shall submit an application for a permit under § 122.21, with reasons supporting the request, to the Director no later than 90 days after the publication by EPA of the Notice of Availability of the final General Permit. The request shall be processed under 40 CFR Part 124. The request shall be granted by issuing of an individual permit if the reasons cited by the owner or operator are adequate to support the request.

When an individual NPDES permit is issued to an operator otherwise subject to this General Permit, the applicability of this permit to that owner or operator is automatically terminated on the effective date of the individual permit.

5.4 EPA Determination of Coverage

Any operator may request to be covered under this General Permit but the final authority rests with EPA. Coverage under this General Permit will not be effective until receipt of notification of inclusion (*i.e.*, authorization to discharge) from EPA. The effective date of coverage will be the date indicated in the authorization to discharge provided by EPA in writing.

Any operator authorized to discharge under this General Permit will receive written notification from EPA. Failure to receive from EPA written notification of permit coverage means that the operator is not authorized to discharge under this General Permit.

6 Federal Permitting Requirements

6.1 Endangered Species Act

The Endangered Species Act (ESA) of 1973 requires federal agencies such as EPA to ensure, in consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration Fisheries Office (NOAA Fisheries), also known collectively as "the Services", that any actions authorized, funded, or carried out by the EPA (e.g., EPA issued NPDES permits authorizing discharges to waters of the United States) are not likely to jeopardize the continued existence of any Federally listed endangered or threatened species or adversely modify or destroy critical habitat of such species (see 16 U.S.C. 1536(a)(2), 50 CFR § 402 and 40 CFR § 122.49(c)).

Section 7 of the ESA provides for formal and informal consultation with the Services. For NPDES permits issued in Massachusetts 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 following are ESA species found in Massachusetts:

Dwarf Wedgemussel (*Alasmidonta heterodon*)
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*)
American Burying Beetle (*Nicrophorus americanus*)
Northeastern Beach Tiger Beetle (*Cicindela dorsalis dorsalis*)
Rusty Patched Bumble Bee *(Bombus affinis)*
Northern Long-Eared Bat *(Myotis septentrionalis)*

Atlantic Sturgeon (*Acipenser oxyrinchus*)*
Shortnose Sturgeon (*Acipenser brevirostrum*)*
Leatherback Sea Turtle (*Dermochelys coriacea*)*
Loggerhead Sea Turtle (*Caretta caretta*)*
Kemp's Ridley Sea Turtle (*Lepidochelys kempii*)*
Green Sea Turtle (*Chelonia mydas*)*
North Atlantic Right Whale (*Eubalaena* glacialis)*
Fin Whale (*Balaenoptera physalus*)*

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

The discharges eligible/ineligible to be authorized under the General Permit are described in Section 1 of this Fact Sheet and listed in Attachment E of the General Permit. The Medium WWTF 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 Medium WWTF GP effluent limits are sufficiently stringent to assure that water quality standards are achieved which protect both aquatic life and human health. The effluent limitations established in the Medium WWTF GP ensure the maintenance of the receiving water as an aquatic habitat. Further, the Medium WWTF GP requires that individual permits be issued if actual environmental conditions (including the preservation of endangered species) are not adequately covered by the Medium WWTF GP.

Of the species listed above, the expected presence of a number of plants and animals, based on their terrestrial, semi-aquatic or near shore beach habitats, do not overlap with the effluent discharges expected to be covered under the General Permit. For the following species that do not overlap with the action areas of the expected discharges, EPA has made the determination that no consultation with the Services is required:

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)*

However, one terrestrial listed threatened species, the northern long-eared bat (*Myotis septentrionalis*) is identified as occurring statewide in Massachusetts and could potentially come in contact with the aquatic action area of the facilities seeking coverage under the Medium

WWTF GP.[24]

The threatened northern long-eared bat is under the jurisdiction of the USFWS. 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 44 facilities expected to seek coverage in Massachusetts are located throughout the state, EPA prepared an Effects Determination Letter for the Medium WWTF GP issuance and submitted it to USFWS. Based on the information submitted by EPA, the USFWS notified EPA by letter, dated December 15, 2021, that the permit issuance is consistent with activities analyzed in the USFWS January 5, 2016, Programmatic Biological Opinion (PBO)[25]. 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 Medium WWTF GP NPDES permitting action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Of the 44 facilities expected to seek coverage under the WWTF GP in Massachusetts, EPA has made the preliminary determination that eleven of the facilities contain action areas that likely overlap with federally protected species (see draft General Permit Attachment E). Six of the eleven facilities (Ipswich WWTF, Hull, Marshfield Wastewater Facility, Fairhaven WPCF, Dartmouth WPCF and Scituate) discharge to coastal waters (including Buzzards Bay) and their discharge may overlap with life stages of federally listed shortnose sturgeon, Atlantic sturgeon, leatherback sea turtles, loggerhead sea turtles, Kemp's ridley sea turtles and green sea turtles, along with North Atlantic right whales and fin whales. All but three of these six facilities (Ipswich WWTF, Dartmouth WPCF and Fairhaven WPCF) also discharge to designated critical habitat for Atlantic sturgeon. One of the eleven facilities (Newburyport) discharges to the Merrimack River and the action area may overlap with life stages of federally listed shortnose sturgeon, Atlantic sturgeon, North Atlantic right whales and fin whales (no sea turtles). An additional two of the eleven facilities (South Hadley WWTP and Amesbury WPAF) discharge to river segments (Connecticut River and Merrimack River, respectively) that may overlap with life stages of both shortnose sturgeon and Atlantic sturgeon, as well as designated critical habitat for Atlantic sturgeon. Another facility (Wareham WPCF) discharges to a receiving water that may overlap with life stages of both shortnose sturgeon and Atlantic sturgeon (no critical habitat). The final facility of the eleven identified above (Greenfield WPCP) discharges to a river segment (Deerfield River) that may overlap with life stages of shortnose sturgeon only. These marine and anadromous species are all under the jurisdiction of NOAA Fisheries. No federally protected species under the jurisdiction of the USFWS are expected in the vicinity of the action areas of the facilities proposed to be covered by this general permit.

These protected species life stages, as well as the designated critical habitats, may be influenced by the operation of these facilities. Because these species may be affected by the discharges authorized by the proposed general permit, EPA has thoroughly evaluated the potential impacts of the permit action on these protected species through the preparation of a Biological

[24] See §7 resources for USFWS at https://ecos.fws.gov/ipac/.
[25] USFWS Massachusetts Event Code: : 05E1NE00-2022-E-03032, December 15, 2021.

Assessment (BA). EPA is in the process of finalizing the BA. On the basis of the evaluation, taking into consideration the location of the facilities, the characteristics of the outfalls and the rate of flow of the discharges (facilities with design flows between 1 million gallons per day [MGD] and 5 MGD), EPA has made the preliminary determination that adoption of the Medium WWTF GP is not likely to adversely affect any threatened or endangered species. In addition, EPA has made the preliminary determination that the proposed action may affect, but is not likely to adversely affect, the designated Atlantic sturgeon critical habitat that overlaps the action areas listed above.

Therefore, EPA has judged that a formal consultation pursuant to Section 7 of the ESA is not required. EPA is seeking concurrence from NOAA Fisheries regarding this determination through the information in the draft General Permit, this Fact Sheet, as well as the supporting BA that will be sent to NOAA Fisheries Protected Resources Division as part of the informal consultation process during the draft General Permit's public comment period.

Service Contact Information:

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

6.2 Essential Fish Habitat

Background: Under the 1996 Amendments (PL 104267) to the Magnuson Stevens Fishery Conservation and Management Act (16 U.S.C. §§ 1801 et seq. (1998)), EPA is required to consult with NOAA Fisheries Service (NOAA Fisheries) if EPA's actions 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 which reduces the quality and/or quantity of EFH. (See 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), site specific or habitat wide impacts, including individual, cumulative, or synergistic consequences of actions.

An EFH designation is only available where a Federal Fisheries Management Plan exists. (See 16 U.S.C. § 1855(b)(1)(A)) EFH designations for New England were approved by the US Department of Commerce on March 3, 1999. In a letter to EPA New England dated October 10, 2000, NOAA Fisheries Service agreed that for NPDES permit actions, EFH notification for purposes of consultation can be accomplished in the EFH section of the permit's Fact Sheet or Federal Register Notice.

Proposed Action: EPA is issuing the National Pollutant Discharge Elimination System ("NPDES") General Permit for wastewater treatment facilities ("Medium WWTF GP").

The Medium WWTF GP provides coverage to facilities located in Massachusetts whose discharge consists of wastewaters described in Part 1 of this Fact Sheet.

Resources: Part 1.3 of this Fact Sheet lists the specific discharges excluded from coverage, including discharges to territorial seas, areas of critical environmental concern, ocean sanctuaries, and discharges which may adversely affect EFH under the Magnuson Stevens Fishery Conservation and Management Act.

EPA's EFH assessment considers all federally managed species with designated EFH in the coastal and inland waters of Massachusetts. The following is a list of the 35 EFH species and applicable life stage(s) for the area in Massachusetts that overlap with discharges potentially covered by the Medium WWTP GP. In addition, two Habitat Areas of Particular Concern that overlap with discharges potentially covered by the General Permit are included[26]:

Table 4 – List of EFH Species and Life Stages In The Vicinity of the Proposed Medium WWTF GP Discharges in Massachusetts

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

[26] NOAA EFH Mapper available at http://www.habitat.noaa.gov/protection/efh/efhmapper/

Coastal Area	Species/Management Unit	Lifestage(s) Found at Location
NMA, SMA	American Plaice	Adult, Juvenile, Larvae, Eggs
NMA, SMA	Acadian Redfish	Larvae
NMA, SMA	Thorny Skate	Juvenile
NMA, SMA	Bluefin Tuna	Adult, Juvenile
NMA	Basking Shark	ALL
NMA, SMA	White Shark	Juvenile/Adult
SMA	Sand Tiger Shark	Neonate/Juvenile
NMA, SMA	Northern Shortfin Squid	Adult
NMA, SMA	Longfin Inshore Squid	Juvenile, Adult
NMA, SMA	Atlantic Mackerel	Eggs, Larvae, Juvenile, Adult
NMA, SMA	Bluefish	Adult, Juvenile
NMA, SMA	Atlantic Butterfish	Eggs, Larvae, Adult, Juvenile
NMA, SMA	Spiny Dogfish	Sub-Adult Female, Adult Male, Adult Female
NMA, SMA	Atlantic Surfclam	Juvenile, Adult
NMA, SMA	Scup	Juvenile, Adult
SMA	Summer Flounder	Larvae
NMA, SMA	Black Sea Bass	Juvenile, Adult

River System	Species/Management Unit	
MA- CR, MR	Atlantic Salmon	ALL

Coastal Area	HAPC Name
NMA, SMA	Inshore 20m Juvenile Cod
SMA	Freshwater and Tidal Macrophytes Adult and Juvenile Summer Flounder

NMA = North Coastal Massachusetts waters
SMA = South Coastal Massachusetts waters
CR = Connecticut River Watershed
MR = Merrimack River Watershed

Of the 44 facilities in Massachusetts identified for potential coverage under the WWTF GP, 28 facilities overlap with EFH habitat (see draft General Permit Attachment E). Of these, 18 are located on river systems designated as EFH for Atlantic salmon (Connecticut River Watershed and Merrimack River Watershed) and ten facilities discharges into coastal EFH habitat. The ten coastal facilities are the Dartmouth WPCF, Fairhaven WPCF, Wareham WPCF, Amesbury WPAF, Newburyport, Ipswich WWTF, Hull WPCF, Marshfield Wastewater Facility, Plymouth WWTP and Scituate.

Analysis of Effects: As described above, the proposed Medium WWTF GP covers a variety of substantially similar discharges which could occur anywhere in Massachusetts, except into those waters excluded in Part 1.3 of this Fact Sheet. EPA has identified the following potential sources of impact to aquatic species associated with discharges from WWTFs:

(a) Effluent Toxicity: Certain chemicals used in wastewater 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 Medium WWTF 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 Massachusetts' water quality standards to protect against toxicity to aquatic species.

The Medium WWTF 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 wastewater treatment additives without notification of the regulatory agencies. Examples of wastewater treatment additives that potentially could be found within discharged wastewater include chemicals used for coagulation, pH neutralization, disinfection, and dechlorination.

To further ensure that WWTFs covered under the General Permit are not discharging toxics into receiving water or adversely impacting aquatic life, EPA has added several additional monitoring requirements. 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.

For discharges into freshwater, EPA is proposing the daphnid (*Ceriodaphnia dubia*) and the fathead minnow *(Pimiphales promelas)* for WET testing unless a WWTF's current permit allows fewer species.

For discharges into marine waters, EPA is proposing the inland silverside (*Menidia beryllina)* and the mysid shrimp (*Mysidopsia bahia*) for WET testing unless a WWTF's current permit allows fewer species.

(b) Discharge of Solids: Secondary treatment is comprised of technology-based requirements expressed in terms of BOD_5, TSS and pH. *See* 40 CFR § 133.The WWTF GP contains effluent limits for total suspended solids that are consistent with secondary treatment standards. The monthly average, weekly average, and maximum daily limitation for BOD_5 and TSS are 30 mg/l, 45 mg/L, and 50 mg/L, respectively. These are sufficiently stringent to achieve the water quality standards of Massachusetts. Additionally, the permit contains narrative prohibitions on the discharge of oil and grease, settleable solids, and unacceptable color in the receiving water.

EPA's Finding of Potential Impacts:

EPA has determined that actions regulated by the proposed Medium WWTF GP action may adversely affect EFH. The Draft Permit has been conditioned in the following way to minimize any impacts that reduce the quality and/or quantity of EFH.

- This is the issuance of a General Permit for facilities currently covered by an individual

permit. This action is not expected to cover discharges that constitute a new source of pollutants;

- The effluent limitations established in the Medium WWTF GP ensure protection of aquatic life and maintenance of the receiving water as an aquatic habitat;
- The proposed limits and coverage requirements for the Medium WWTF 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 Medium WWTF GP includes proposed water quality-based effluent limits for BOD_5, TSS, pH, total residual chlorine (TRC), bacteria, metals, total phosphorus, and ammonia nitrogen;
- The Medium WWTF GP includes Whole Effluent Toxicity (WET) limitations and monitoring requirements to ensure that the discharges do not cause acute or chronic toxic effects;
- The Medium WWTF GP prohibits the discharge of pollutants or combination of pollutants in toxic amounts;
- The facilities withdraw no water from their respective waterbodies, so there will be no impact that reduces the quality and/or quantity of EFH by impingement and entrainment of organisms; and
- The proposed Medium WWTF GP requirements minimize any reduction in quality and/or quantity of EFH, either directly or indirectly.

EPA concludes that the effluent limitations, conditions, and monitoring requirements contained in the Medium WWTF GP minimize adverse effects to aquatic organisms and fish habitat, as well as the forage species of essential fish habitat species.

Proposed Mitigation: It is EPA's opinion that the effluent limitations, conditions, and monitoring requirements proposed in the Medium WWTF GP adequately protects all aquatic life, including EFH designated in the receiving waters. Further mitigation is not warranted. 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 Medium WWTF GP can be revoked. Should new information become available that changes the basis for EPA's assessment, then consultation with NOAA Fisheries under the appropriate statute(s) will be reinitiated.

At the beginning of the public comment period, EPA notified NOAA Fisheries Habitat and Ecosystem Services Division that the draft General Permit and Fact Sheet were available for review and provided a link to the EPA NPDES Permit website to allow direct access to the documents.

In addition to this Fact Sheet and the draft General Permit, information to support EPA's finding has been included in a letter under separate cover that will be sent to the NOAA Fisheries Habitat and Ecosystem Services Division during the public comment period.

6.3 Historic Preservation

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 Medium WWTF GP. Based on the nature and location of the discharges, EPA has determined that the WWTFs eligible for authorization under this General Permit do not have the potential to affect a property that is either listed or eligible for listing on the National Register of Historic Places.

Electronic listings of National and State Registers of Historic Places are maintained by the National Park Service (http://www.nps.gov/nr/).

6.4 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 the Executive Office of Environmental Affairs, MA CZM, Project Review Coordinator, 251 Causeway Street, Suite 800, Boston, MA 02114, provide a concurrence that the proposed Medium WWTF GP is consistent with the MA CZMPs.

MA CZM Consistency Review
Of the 44 Massachusetts facilities eligible for potential coverage under the Medium WWTF GP, nine facilities discharge to the coastal zone. The nine coastal facilities are the Dartmouth WPCF, Fairhaven WPCF, Wareham WPCF, Amesbury WPAF, Newburyport, Ipswich WWTF, Hull WPCF, Marshfield Wastewater Facility and Scituate (see draft General Permit Attachment E).

The draft General Permit requires a consistency review to ensure that the discharges from these facilities are 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 eligible permittees must control discharges as necessary to meet applicable numeric and narrative state water quality standards for any discharges so authorized. EPA has requested that the MACZM Office review the Region's determination and confirm that the draft General Permit is consistent with the State's CZMP.

7 Public Comments, Hearing Requests and Permit Appeals

All persons, including applicants, who believe any condition of the draft General 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:

Michele Duspiva
Email: Duspiva.Michele@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 General 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 General Permit, the EPA will respond to all significant comments in a Response to Comments document attached to the final General 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, the EPA will issue a final General 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.

General permits may not be appealed to the Environmental Appeals Board. Procedures governing actions by persons affected by a general NPDES permit, including petitions and applications for individual permits, as well as judicial appeals, are set forth in 40 CFR § 124.19(o) and 40 CFR § 122.28.

8 EPA Contact

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 included in the administrative record on which this draft General Permit is based may be accessed by contacting Michele Duspiva, via email at Duspiva.Michele@epa.gov.

_____
Date

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

Appendix A – Reasonable Potential Analysis and Limit Derivation

For establishing facility-specific effluent limits, EPA will conduct a reasonable potential analysis and, if necessary, derive effluent limits according to the methodology described below. This methodology distinguishes between freshwater and marine discharges and may be applied to any pollutants of concern, including total phosphorus (for freshwater discharges only), ammonia nitrogen, total recoverable metals and other pollutants for which the facility has submitted monitoring data.

A reasonable potential analysis is completed using a single set of critical conditions for flow and pollutant concentration that will ensure the protection of water quality standards. To determine the critical condition of the effluent, EPA projects an upper bound of the effluent concentration based on the observed monitoring data and a selected probability basis. EPA generally applies the quantitative approach found in Appendix E of the *Technical Support Document for Water Quality-based Toxics Control* (TSD)[i] to determine the upper bound of the effluent data. This methodology accounts for effluent variability based on the size of the dataset and the occurrence of non-detects (*i.e.*, sample results in which a parameter is not detected above laboratory detection limits). For datasets of 10 or more samples, EPA uses the upper bound effluent concentration at the 95th percentile of the dataset. For datasets of less than 10 samples, EPA uses the maximum value of the dataset.

For Freshwater Discharges

For freshwater discharges, EPA uses the calculated upper bound of the effluent data, along with a concentration representative of the parameter in the receiving water, the critical effluent flow, and the critical upstream flow to project the downstream concentration after complete mixing using the following simple mass-balance equation:

$$C_s Q_s + C_e Q_e = C_d Q_d$$

Where:

C_s = upstream concentration[1]
Q_s = upstream flow (critical low flow upstream of the outfall)
C_e = effluent concentration[2]
Q_e = effluent flow of the facility (design flow)
C_d = downstream concentration
Q_d = downstream flow ($Q_s + Q_e$)

Solving for the downstream concentration results in:

$$C_d = \frac{C_s Q_s + C_e Q_e}{Q_d}$$

[1] Median concentration for the receiving water just upstream of the facility's discharge taken from all available information over the most recent 5-year period, including WET testing data, for each Permittee.
[2] The 95th percentile (for $n \geq 10$) or maximum (for $n < 10$) concentrations from all available data over the most recent 5-year period, including DMR data and/or WET testing data, for each Permittee.

When both the downstream concentration (C_d) and the effluent concentration (C_e) exceed the applicable criterion, there is reasonable potential for the discharge to cause, or contribute to an excursion above the water quality standard. *See* 40 CFR § 122.44(d). When EPA determines that a discharge causes, has the reasonable potential to cause, or contribute to such an excursion, the permit must contain WQBELs for the parameter. *See* 40 CFR § 122.44(d)(1)(iii). Limits are calculated by using the criterion as the downstream concentration (C_d) and rearranging the mass balance equation to solve for the effluent concentration (C_e). Refer to the pollutant-specific section of the Fact Sheet for a discussion of these calculations, any assumptions that must be made and other relevant permit requirements.

For Marine Discharges

For marine discharges, EPA uses the dilution factor, the calculated upper bound of the effluent data and a concentration representative of the parameter in the receiving water outside of the zone of influence of the discharge to project the downstream concentration after complete mixing using the following simple mass-balance equation:

$$C_s(DF - 1) + C_e = C_d(DF)$$

Where:

C_s = upstream concentration[3]
C_e = effluent concentration[4] (95th percentile or maximum of effluent concentration)
C_d = downstream concentration
DF = dilution factor (See Dilution Factor section of Fact Sheet)

Solving for the downstream concentration results in:

$$C_d = \frac{C_s(DF - 1) + C_e}{DF}$$

When both the downstream concentration (C_d) and the effluent concentration (C_e) exceed the applicable criterion, there is reasonable potential for the discharge to cause, or contribute to an excursion above the water quality standard. *See* 40 C.F.R. § 122.44(d). When EPA determines that a discharge causes, has the reasonable potential to cause, or contribute to such an excursion, the permit must contain WQBELs for the parameter. *See* 40 C.F.R. § 122.44(d)(1)(iii). Limits are calculated by using the criterion as the downstream concentration (C_d) and rearranging the mass balance equation to solve for the effluent concentration (C_e). Refer to the pollutant-specific section of the Fact Sheet for a discussion of these calculations, any assumptions that must be made and other relevant permit requirements.

[3] Median concentration for the receiving water outside of the zone of influence of the facility's discharge taken from all available information over the most recent 5-year period, including WET testing data, for each Permittee.
[4] The 95th percentile (for $n \geq 10$) or maximum (for $n < 10$) concentrations from all available date over the most recent 5-year period, including DMR data and/or WET testing data, for each Permittee.

For any pollutant(s) with an existing WQBEL, EPA notes that the analysis described in 40 CFR § 122.44(d)(1)(i) has already been conducted in a previous permitting action demonstrating that there is reasonable potential to cause or contribute to an excursion of WQS. Given that the permit already contains a WQBEL based on the prior analysis and the pollutant(s) continue to be discharged from the facility, EPA has determined that there is still reasonable potential for the discharge of this pollutant(s) to cause or contribute to an excursion of WQS. Therefore, the WQBEL will be carried forward unless it is determined that a more stringent WQBEL is necessary to continue to protect WQS or that a less stringent WQBEL is allowable based on anti-backsliding regulations at CWA §§ 402(o) and 303(d)(4) and 40 CFR § 122.44(l). For these pollutant(s), if any, the mass balance calculation is not used to determine whether there is reasonable potential to cause or contribute to an excursion of WQS, but rather is used to determine whether the existing limit needs to be more stringent in order to continue to protect WQS.

From a technical standpoint, when a pollutant is already being controlled as a result of a previously established WQBEL, EPA has determined that it is not appropriate to use new effluent data to reevaluate the need for the existing limit because the reasonable potential to cause or contribute to an excursion of WQS for the uncontrolled discharge was already established in a previous permit. If EPA were to conduct such an evaluation and find no reasonable potential for the controlled discharge to cause or contribute to an excursion of WQS, that finding could be interpreted to suggest that the effluent limit should be removed. However, the new permit without the effluent limit would imply that existing controls are unnecessary, that controls could be removed and then the pollutant concentration could rise to a level where there is, once again, reasonable potential for the discharge to cause or contribute to an excursion of WQS. This could result in an illogical cycle of applying and removing pollutant controls with each permit reissuance. EPA’s technical approach on this issue is in keeping with the Act generally and the NPDES regulations specifically, which reflect a precautionary approach to controlling pollutant discharges.

Appendix B - Total Nitrogen Requirements in the Long Island Sound Watershed

As explained below, since 2019 EPA has adopted a systemic, state-by-state approach to control nitrogen pollution discharging from "out-of-basin" point sources in Massachusetts, New Hampshire and Vermont into tributaries of LIS, a severely impaired water body shared by New York and Connecticut. EPA's methodology for establishing TN limitations for out-of-basin POTWs in Massachusetts and New Hampshire has been challenged in the United States Environmental Appeals Board, where the case is now pending. EPA's Response to the Petition was filed on December 11, 2020, and EPA incorporates that filing herein, inclusive of attachments (*e.g.*, Exhibit S, Response to the Comments, as it relates to TN).[1]

In 2000, New York and Connecticut finalized a Total Maximum Daily Load[2] (TMDL) that addressed dissolved oxygen impairments in Long Island Sound due to excessive nitrogen loading. It was approved by EPA in 2001. While the TMDL included waste load allocations (WLAs) for point sources in Connecticut and New York, out-of-basin facilities were not assigned WLAs. However, the Connecticut and New York WLAs included in the TMDL were based on an assumption that out-of-basin point source loads of total nitrogen would be reduced in aggregate by 25% from the baseline through enforceable permit requirements imposed by permitting authorities in the out-of-basin states to protect downstream waters.

EPA implemented optimization requirements in many out-of-basin permits issued in the LIS watershed from 2007 through early 2019 in accordance with an agreement forged in 2012 among the five LIS watershed states, known as the "Enhanced Implementation Plan" (EIP).[3] However, concerns raised in recent public comments by the downstream state (Connecticut) and citizens highlighted the need for clearly enforceable, numeric, loading-based effluent limits to ensure that the annual aggregate nitrogen loading from out-of-basin point sources are consistent with the assumptions of the TMDL WLA of 19,657 lb/day and to ensure that current aggregate loadings do not increase. This is in accordance with the State of Connecticut's antidegradation policy, which requires existing uses to be fully maintained and protected. These uses are already being compromised given the continued, severe nitrogen-driven impairments in LIS. After further review of federal and state requirements, EPA agreed with the concerns raised by the downstream affected state and the public and noted that optimization requirements, by themselves, do not prevent further increases in nitrogen due to population growth (and consequent flow increases) or new industrial dischargers.

Scientific, Statutory and Regulatory Implementation Considerations

As discussed in Section 2 of this Fact Sheet, statutory and regulatory requirements regarding the development of water quality-based effluent limits include: (1) consideration of applicable water

[1] https://yosemite.epa.gov/OA/EAB_WEB_Docket.nsf/Filings%20By%20Appeal%20Number/11443A888232A1C88525863B006D4491/$File/Springfield%20Response%20to%20Petition_Final_12_11_2020.pdf.

[2] Connecticut Department of Environmental Protection and New York State Department of Environmental Conservation, *A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound* (LIS TMDL), December 2000.

[3] Long Island Sound Study Steering Committee, NY, CT, MA, NH, VT, *Enhanced Implementation Plan for the Long Island Sound Total Maximum Daily Load*, 2012. Available at: https://neiwpcc.org/our-programs/pollution-control/lis-tmdl/.

quality requirements of downstream states, including provisions to prevent further degradation of receiving waters that are already impaired, pursuant to a state's antidegradation policy, and provisions to implement other applicable water quality standards, including translation of narrative water quality criteria, and (2) provisions to ensure consistency with the assumptions of any available WLAs.

LIS covers about 1,300 square miles and borders Connecticut and New York. It drains a densely populated watershed area of over 16,000 square miles, including portions of Maine, Vermont, New Hampshire and Massachusetts. About 613 square miles of LIS fall within Connecticut. Connecticut classifies LIS as Class SA and Class SB and designates these waters as, *inter alia,* suitable for recreation and aquatic life habitat. R.C.S.A. § 22a-426-4(f), (j).

Connecticut regulations establish DO, biological condition, and nutrient criteria for each water class. For Class SA and SB waters, DO must not be less than 3 mg/L and may be less than 4.8 mg/L for only limited periods of time. R.C.S.A. § 22a-426-9(a)(1). Regarding biologic condition, "Surface waters… shall be free from…constituents…which…can reasonably be expected to…impair the biological integrity of aquatic or marine ecosystems…" *Id*. at § 22a-426-4(a)(5). "The loading of…nitrogen…to any surface water body shall not exceed that which supports maintenance or attainment of designated uses." *Id*. at § 22a-426-9; *see also* § 22a-426-4(a)(11) (authorizing "imposition of discharge limitations or other reasonable controls… for point…sources of …nitrogen…which have the potential to contribute to the impairment of any surface water, to ensure maintenance and attainment of existing and designated uses, restore impaired waters, and prevent excessive anthropogenic inputs of nutrients or impairment of downstream waters.")

Connecticut regulations mandate protection of "existing" and "designated" uses. R.C.S.A. § 22a-426-8(a)(1). "Tier 1" antidegradation review provides:

> The Commissioner shall determine whether the discharge or activity is consistent with the maintenance, restoration, and protection of existing and designated uses assigned to the receiving water body by considering all relevant available data and the best professional judgment of department staff. *All narrative and numeric water quality standards, criteria and associated policies contained in the Connecticut Water Quality Standards shall form the basis for such evaluation considering the discharge or activity both independently and in the context of other discharges and activities in the affected water body and considering any impairment listed pursuant to 33 USC 1313(d) or any Total Maximum Daily Load (TMDL) established for the water body.*

R.C.S.A. § 22a-426-8(f) (emphasis added). The standards further provide, "The procedures for review outlined in this policy apply to any discharge or activity that is affecting or *may affect* [emphasis added] water quality in Connecticut, including but not limited to any existing, new or increased activity or discharge requiring a permit, water quality certificate or authorization pursuant to chapters 439, 440, 445 or 446i to 446k, inclusive of the Connecticut General Statutes."

Although nitrogen driven impairments in LIS have been reduced in recent years, they have not been eliminated, and they remain significant. In EPA's technical and scientific judgment, the

current quantity of nitrogen in LIS exceeds the narrative and numeric nutrient-related criteria applicable to LIS, and designated aquatic life uses are not being protected, based on analyses of water quality data and information in the administrative record.[4] While there have been significant reductions in the size of the hypoxic zone in LIS due largely to in-basin point source TN reductions, LIS continues to be impaired.[5] It is undisputed that significant amounts of nitrogen from out-of-basin facilities are discharged to the LIS watershed (as much as 6 million pounds per year, based on the sum of the maximum annual discharge from each out-of-basin discharger from 2013 to 2017). The out-of-basin loads in the aggregate necessarily contribute, or have the reasonable potential to contribute, to these violations.

Since the LIS TMDL was approved by EPA in 2001, the study of water quality conditions in LIS and the nitrogen loadings that contribute to hypoxia and other impairments there has continued. Annual monitoring of hypoxia and dissolved oxygen conditions in Long Island continues, as most recently documented in the *2019 Long Island Sound Hypoxia Season Review*[6] which notes that while the area of hypoxia has been reduced, water quality standards have not yet been met.[7]

In 2015, the Long Island Sound Study (LISS)[8] updated its Long Island Sound Comprehensive Conservation and Management Plan (CCMP)[9] which sets watershed targets, implementation actions to meet those targets, and monitoring strategies. One of the objectives of the CCMP is to improve water quality by further reducing nitrogen pollution from sources that are more distant from the Sound, [10] such as wastewater treatment plants in Massachusetts and New Hampshire.

A study published in 2008 used both measurements and mass-balance modeling to evaluate the potential for nitrogen attenuation in the main stem of the Connecticut River in April and August 2005. One of the reaches studied was a 55 km stretch of the Connecticut River in Massachusetts. The study found no nitrogen loss in that reach either in April or August, most likely due to the depth and higher velocities in the main stem of the river compared to the shallower, slower tributaries where previous models and studies had demonstrated varying degrees of nitrogen attenuation.[11]

In addition, subsequent studies refined the understanding of out-of-basin baseline nitrogen loading which suggest lower out-of-basin baseline point source loading to the Connecticut River than the 21,672 lb/day assumed in the 2000 TMDL. In 2013, the United States Geological

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[4] *See* e.g. Long Island Sound Report Card 2018, at https://www.ctenvironment.org/wp content/uploads/2018/09/ReportCard2018-BestView.pdf
[5] Long Island Sound Study, *A Healthier Long Island Sound: Nitrogen Pollution*, 2019, page 2.
[6] CTDEEP, Interstate Environmental Commission, EPA, *2019 Long Island Sound Hypoxia Season Review*, available at: http://www.iec-nynjct.org/sites/default/files/2020-07/FINAL_LISound-Hypoxia-2019-Combined-Report_april2020.pdf
[7] *2019 Long Island Sound Hypoxia Season Review* (page 13)
[8] The Long Island Sound Study (LISS) is a bi-state partnership, formed by EPA, New York and Connecticut in 1985, consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to restoring and protecting the Long Island Sound. For more information see https://longislandsoundstudy.net/
[9] LISS, Long Island Sound Comprehensive Conservation and Management Plan 2015 Returning the Urban Sea to Abundance (CCMP), 2015.
[10] CCMP, page 19.
[11] Smith, Thor E., et al, *Nitrogen Attenuation in the Connecticut River, Northeastern USA; A Comparison of Mass Balance and N_2 Production Modeling Approaches, Biogeochemistry*, Mar., 2008, Vol. 87, No. 3 (Mar., 2008), pp. 311-323

Survey (USGS) published an estimation of the total nitrogen load to Long Island Sound from Connecticut and contributing areas to the north for October 1998 to September 2009.[12] Available total nitrogen and continuous flow data from 37 water-quality monitoring stations in the LIS watershed, for some or all of these years, were used to compute total annual nitrogen yields and loads. In order to extract the non-point source loadings from the total nitrogen measured, the authors relied on point source estimates from the SPARROW model of nutrient delivery to waters in the Northeastern and Mid-Atlantic states in 2002, including the Connecticut River, that was published by Moore and others in 2011.[13] The SPARROW model estimated that 1,776.7 metric tons per year (MT/yr) (or annual average 10,820 lb/day) of total nitrogen was discharged to the Connecticut River from Massachusetts, New Hampshire and Vermont in 2002[14]. These estimates were based on an approach by Maupin and Ivahnenko, published the same year, which used discharge monitoring data available from EPA's Permit Compliance System (PCS) database for 2002.[15,16] Where no data was available, an estimated typical pollutant concentration (TPC) and flow was used to approximate nitrogen loading from point sources according to their industrial category.[17]

Finally, Long Island Sound continues to be listed as impaired on Connecticut's latest EPA-approved list of impaired waters and is experiencing ongoing effects of eutrophication, including low DO, although the system has experienced improvements since the TMDL was approved.

In light of the foregoing, EPA is establishing water quality-based effluent limitations for total nitrogen on three grounds: (1) to ensure compliance with the State of Connecticut's antidegradation provisions, a downstream affected state under 401(a)(2) of the Act and 40 CFR § 122.4(d); (2) to translate and fully implement the state's narrative water quality criterion for nutrients, pursuant to 40 CFR § 122.44(d)(1)(vi)(A); and (3) to ensure consistency with the assumptions and requirements of the available WLA, pursuant to 40 CFR § 122.44(d)(1)(vii)(B).

Compliance with Antidegradation Requirements of Downstream Affected State

One of the principal objectives of the CWA, articulated in CWA § 101(a) is to "maintain the chemical, physical and biological integrity of the Nation's waters." The antidegradation requirements in federal regulations at 40 CFR § 131.12 provide a framework for maintaining and protecting water quality that has already been achieved and require states to adopt provisions in their water quality standards that prevent further degradation of both degraded waters and waters

[12] Mullaney, J.R., and Schwarz, G.E., 2013, Estimated Nitrogen Loads from Selected Tributaries in Connecticut Draining to Long Island Sound, 1999–2009: U.S. Geological Survey Scientific Investigations Report 2013–5171, 65
[13] Moore, Richard B., Craig M. Johnston, Richard A. Smith, and Bryan Milstead, 2011. Source and Delivery of Nutrients to Receiving Waters in the Northeastern and Mid-Atlantic Regions of the United States. Journal of the American Water Resources Association (JAWRA) 47(5):965-990. DOI: 10.1111⁄j.1752-1688.2011.00582.x
[14] Extrapolated from Moore, et.al 2011, Table 3 on page 977 which estimated that for 2002 an 33.2 % of the total 4,553 MT/yr Massachusetts nitrogen load was from point sources, 2.5% of the total 3,795 MT/yr Vermont nitrogen load was from point sources and 6.1 percent of the total 2,790 MT/yr New Hampshire nitrogen load was from point sources.
[15] Moore (2011), page 968.
[16]Maupin, Molly A. and Tamara Ivahnenko, 2011. Nutrient Loadings to Streams of the Continental United States From Municipal and Industrial Effluent. *Journal of the American Water Resources Association* (JAWRA) 47(5):950-964.
[17] Maupin (2011), page 954.

which are meeting or exceeding the water quality necessary to protect designated and existing uses. As noted above, antidegradation provisions of Connecticut's water quality standards require that existing uses be fully maintained and protected. They expressly required consideration of any applicable TMDL, as well as narrative and numeric water quality criteria. EPA therefore undertakes Tier 1 review in light of the LIS TMDL, which has still not resulted in attainment of water quality standards in LIS, as well as Connecticut's numeric water quality criteria for dissolved oxygen, which are routinely violated, and its narrative water quality criteria nutrients, which is likewise not being met. Authorizing a significantly increased nitrogen loading into an impaired water body that is suffering the ongoing effects of cultural eutrophication would further compromise receiving water conditions and uses and be inconsistent with applicable antidegradation requirements. In arriving at this conclusion, EPA also notes that Connecticut's antidegradation procedures are precautionary in nature and apply to discharges that "may affect" water quality.

To ensure that the out-of-basin point-source load does not violate Connecticut's antidegradation standards, the new total nitrogen loading limits (for dischargers with design flows greater than 1 MGD) along with the requirement to minimize nitrogen discharge by facility optimization (for all dischargers with design flow greater than 0.1 MGD) are intended to ensure that nitrogen loads are held at current loadings.

Translation of Narrative Nutrient Criteria

Using the TMDL as the "calculated numeric water quality criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use" under the regulatory provision used to translate narrative water quality criteria into numeric effluent limitations, 40 CFR § 122.44(d)(1)(vi)(A), EPA has determined that an effluent limitation is necessary to ensure compliance with the State's narrative water quality criterion for nutrients. In order to assure compliance with water quality standards, and fully implement and translate the states' narrative nutrient and related criteria, out-of-basin loads in EPA's judgment should not be increased, because water quality data indicates that the assimilative capacity for nitrogen has been reached in portions of LIS and cultural eutrophication, the impacts of which include hypoxia, is ongoing. It is reasonable, in EPA's view, to issue permits to out-of-basin dischargers that hold loads constant and in so doing curtail the potential for these out-of-basin loadings to contribute to further impairment and degradation of a water that is already beyond its assimilative capacity for nitrogen. The TN effluent limits and optimization requirements are necessary to assure that the out-of-basin load does not cause or contribute to further violation of water quality criteria in the downstream LIS. Holding these loads level, in conjunction with significant nitrogen pollution reduction efforts being pursued by in-basin dischargers will, under EPA's analysis, be sufficient to make a finding that the out-of-basin permits taken as a whole contain nutrient controls sufficient to ensure that the discharges comply with water quality standards under Section 301 of the Act, based on information in the record currently before EPA. EPA acknowledges the complexity of the system and the receiving water response, and EPA recognizes that work that is currently ongoing with regards to additional water quality modeling, point source load reductions and WWTP upgrades in other states, particularly New York and Connecticut. In order to ensure that water quality standards are met, EPA has determined that, at most, TN should be no greater than that resulting from nitrogen currently being discharged from all sources. Holding the load from out-of-basin

sources, along with reductions resulting from the nitrogen optimization special condition, combined with other ongoing work to further reduce in-basin loadings, are in EPA's judgment together sufficient to assure that the discharge is in compliance with standards.

Consistency with Assumptions of Available WLA

Finally, EPA is imposing enforceable total nitrogen limitations for dischargers with design flow above 1 MGD to ensure consistency with the assumptions and requirements of the applicable WLA, which calls for out-of-basin loads to be capped at 25% of the baseline in fact at the time of TMDL approval. A WQBEL for a discharge must ensure compliance with WQS and be "consistent with the assumptions and requirements" of an available WLA. 40 CFR § 122.44(d)(1)(vii)(B). Capping the aggregate out-of-basin load at current levels will ensure that this requirement is met.

In sum, the permit conditions at issue here have been fashioned to ensure full implementation of CWA §§ 301(b)(1)(C), 401(a)(2) and 402, as well as consistency with the assumptions of the LIS WLA. A permitting authority has wide discretion to determine appropriate effluent limits for a permit. "Congress has vested in the Administrator [of EPA] broad discretion to establish conditions for NPDES permits" in order to achieve these statutory mandates of establishing effluent limitations, including narrative permit conditions, to attain and maintain water quality standards. *Arkansas v. Oklahoma*, 503 U.S. 91, 105 (1992). Section 402 provides that a permit may be issued upon condition "that such discharge will meet either all applicable requirements under sections 301, 302, 306, 307, 308 and 403 of this Act, or prior to taking of necessary implementing actions relating to all such requirements, such conditions as the Administrator determines are necessary to carry out the provisions of this Act." 33 U.S.C. §1342(a). "This provision gives EPA considerable flexibility in framing the permit to achieve a desired reduction in pollutant discharges." *Id.* An increased discharge of nitrogen beyond current loads into nitrogen-degraded waters experiencing the effects of cultural eutrophication (*e.g.*, DO impairments) under the circumstances here would not be consistent with the Act. Holding the load from these facilities will maintain and protect existing uses. This allows EPA to ensure that the nitrogen limits are applied fairly and in a technologically feasible manner while ensuring that antidegradation provisions of Connecticut's water quality standards are being met.

EPA's decision to cap the out-of-basin TN loads in the aggregate was consistent with a gross approach to pollutant control, which is appropriate here given the need to ensure reasonable further progress toward restoration of uses in LIS based on reductions that have already occurred and whose impact is still being realized. It is also appropriate in light of the fact that more sophisticated models to precisely define the exact level of pollutant controls needed are not available. EPA has explained that when permitting for nutrients, time is of the essence, because of the tendency of nutrients to recycle in the ecosystem and exacerbate existing impairments, as outlined in EPA's Nutrient Technical Guidance Manual. Rather than wait for the development of that information, a daunting task because of the size and complexity of LIS and vast areal extent of loading, EPA determined that it would be reasonable to move forward. This decision is also reasonable because the permits for many other contributing sources are long expired. The D.C. Circuit has described the CWA's balance when confronted with a difficult situation and the obligation to eliminate water quality impairments: "EPA may issue permits with conditions designed to reduce the level of effluent discharges to acceptable levels. This may well mean

opting for a gross reduction in pollutant discharge rather than the fine-tuning suggested by numerical limitations. *But this ambitious statute is not hospitable to the concept that the appropriate response to a difficult pollution problem is not to try at all.*" *Natural Resources Defense Council, Inc. v. Costle,* 568 F.2d 1369, 1380 (D.C. Cir. 1977) (emphasis added) (finding unlawful a rule that would have exempted certain discharges from permitting requirements based on the difficulty in setting limits).

Derivation of Effluent Limits

As mentioned above, the TMDL did not assign each out-of-basin POTW a specific WLA but instead specifies an aggregate reduction target. Therefore, the task of allocating nitrogen loads among these facilities in a manner that ensures compliance with water quality standards, as required under Section 301 of the Act, falls to EPA. That EPA would implement any necessary reductions through the issuance and oversight of NPDES permits was expressly assumed by the TMDL. EPA notes that as much as 6 million pounds of nitrogen per year from out-of-basin facilities are discharged to the LIS watershed and that ongoing nitrogen-driven water quality impairments exist in LIS.

In developing allocations for Massachusetts and New Hampshire dischargers, EPA began with two facts: first, that significant amounts of nitrogen from out-of-basin facilities are discharged to the LIS watershed (as much as 6 million pounds per year, based on the sum of the sum of the maximum annual discharge from each out-of-basin discharger from 2013 to 2017) and, second, that ongoing nitrogen water quality impairments exist in LIS.

When confronting the difficult environmental regulatory problem of controlling or accounting for dozens of discharges into a complex water body like Long Island Sound, EPA was presented with a variety of potential permitting approaches. Long Island Sound is a nitrogen-impaired water body spanning 1,268 square miles that implicates the sometimes-divergent interests of five states, dozens of municipalities and numerous non-governmental organizations (NGOs), along with interested members of the public. In developing its overarching permitting approach, as well as each individual permit, EPA carefully considered, but ultimately rejected, several possible alternatives, on two principal grounds: (1) that they were not sufficiently protective to assure that all the applicable requirements of the Act would be met (*i.e.*, they lacked enforceable TN effluent limitations to *ensure* as a matter of law that nitrogen loads would be maintained at protective levels), or (2) that they would entail unwarranted uncertainty and delay (*i.e.*, they called for the development of new or revised TMDLs or for development of extensive new data collection or modelling in an attempt refine or pinpoint necessary targets and loads, even though the permits at issue have long-since expired and water quality impairments are ongoing).

Rather than approach this complex permitting task on an *ad hoc* basis, EPA instead fashioned a systemic permitting approach designed to comprehensively regulate nitrogen loading from out-of-basin nitrogen sources on a gross, basin-level scale. EPA addressed the existing TN loading to ensure achievement of the following overarching objectives:

- the overall out-of-basin TN load does not increase in accordance with antidegradation requirements, given that the LIS is already nitrogen impaired, through the imposition of enforceable effluent limits that are annual average mass-based, consistent with the assumptions of the TMDL;

- no individual facility is left with an effluent limit that is not achievable using readily available treatment technology at the facility's design flow; and
- smaller facilities can achieve their limits through optimization.

EPA's derivation of effluent limitations to implement these objectives, based on its best professional judgment and information reasonably available to the permit writer at the time of permit issuance, consists of three essential parts:

- First, EPA *identified* the existing aggregate load from all contributing facilities in a given state.
- Second, because Long Island Sound is already nitrogen impaired and failing to achieve applicable water quality standards,[18] EPA *capped* that load to avoid contributing to further impairments and fully protect existing uses.
- Third, EPA *allocated* the load according to a water quality-related consideration rationally related to achieving water quality standards in Long Island Sound and carrying out the objectives of the Act.

In the case of Massachusetts and New Hampshire, that consideration was facility *size*, with loads distributed based on the design flow of the POTW treatment plants. In deriving design-flow-based effluent limitations, EPA utilized the following methodology:

- EPA estimated the current maximum out-of-basin annual point source load using data for the five year period of 2014 to 2018, consistent with Region 1's ordinary practice of using the most recent five years of data in the derivation of effluent limits for permits, which is in accordance with the recommendation in EPA guidance to use three to five years and, by use of the longer timeframe, is intended to more fully capture a representative data set[19] (see estimate of recent effluent loadings in Exhibit 1 below);
- It prioritized effluent limits for major POTW facilities with design flow greater than 1 MGD for Massachusetts, consistent with the definition of major facility[20] in 40 CFR § 122.2, and 1.5 MGD for New Hampshire;
- It developed mass-based rolling annual average TN effluent limits based on design flow (consistent with 40 CFR § 122.45(b)(1)) and effluent concentrations that can achieved by means of currently available nitrogen removal technology for all facilities and the design flow for each facility, where effluent limit (lb/day) = Concentration (mg/L) x Design Flow (MGD) x 8.34;

[18] CTDEEP, Interstate Environmental Commission, EPA, *2019 Long Island Sound Hypoxia Season Review*, available at: http://www.iec-nynjct.org/sites/default/files/2020-07/FINAL_LISound-Hypoxia-2019-Combined-Report_april2020.pdf

[19] *NPDES Permit Writer's Manual*, EPA-833-K-10-001, September 2010, page 5-30, available at: https://www.epa.gov/sites/production/files/2015-09/documents/pwm_2010.pdf.

[20] *NPDES Permit Writer's Manual*, EPA-833-K-10-001, September 2010, page 2-17, available at: https://www.epa.gov/sites/production/files/2015-09/documents/pwm_2010.pdf.

- EPA based limits on concentrations that can typically be achieved through optimization for POTW facilities with design flow less than 10 MGD, with more aggressive optimization expected for facilities with design flow greater than 5 MGD; and,
- For the four POTW facilities with design flow greater than 10 MGD (which together comprise more than half of the total Massachusetts load to LIS), EPA based limits on concentrations achievable through optimization or upgrades.

Although EPA considered caps for individual dischargers at their current loadings, that approach was rejected because these effluent limits are subject to statutory anti-backsliding requirements of CWA § 402(o) which would prevent a limit from being increased if flows increase due to new residential or industrial development. Therefore, a facility currently discharging well below its design flow, could be put in a position of having a load limit that is below the limit of technology at its design flow. For example, if a new industrial discharger was to tie in, even if that discharger was willing to invest in readily available treatment technology, the load would preclude the facility from operating at its design flow.

Instead, EPA examined out-of-basin loads across the watershed and developed effluent limits that are achievable through optimization or readily available treatment technologies for all facilities, even if they are operating at their design flow. EPA has determined that this approach will be protective of water quality and will carefully monitor receiving water response over the permit term and adjust as necessary. EPA recognizes that Connecticut and New York have very substantially reduced their nitrogen loadings into LIS and water quality conditions have improved, although LIS is not yet fully achieving water quality standards. Additional work is being undertaken in New York and Connecticut to further reduce nitrogen loadings into LIS. It will take time to allow the impact of these reductions to be fully realized and for designated uses to be fully restored. EPA believes that this approach reasonably balances the need to hold overall TN loadings constant to avoid exacerbating ongoing nitrogen-driven environmental degradation against the inherent scientific and technical uncertainty associated with receiving water response in a water body as complex as LIS. More stringent limitations on the out-of-basin dischargers are therefore not necessitated at this time.

Based on the approach described above, Tables 1 and 2 summarize EPA's approach since 2019 to update TN requirements for permits in the LIS watershed in Massachusetts and New Hampshire, respectively.

Table 1 - Annual Average Total Nitrogen Limits for Massachusetts WWTF Dischargers to the Long Island Sound Watershed

Facility Design Flow, Q_D (MGD)	**Annual Average TN Limit (lb/day)**
$Q_D > 10$	Q_D (MGD) * 5 mg/L * 8.34 + optimize
$5 < Q_D \leq 10$	Q_D (MGD) * 8 mg/L * 8.34 + optimize
$1 \leq Q_D \leq 5$	Q_D (MGD) * 10 mg/L * 8.34 + optimize
$0.1 \leq Q_D < 1$	Optimize
$Q_D < 0.1$	TN monitoring only

Table 2 - Annual Average Total Nitrogen Limits for New Hampshire WWTF Dischargers to the Long Island Sound Watershed

Facility Design Flow, Q_D (MGD)	Annual Average TN Limit (lb/day)
$1.5 \leq Q_D$	Q_D (MGD) * 10 mg/L * 8.34 + optimize
$0.1 \leq Q_D < 1.5$	Optimize
$Q_D < 0.1$	TN monitoring only

The basis for establishing mass-based effluent limits using facility design flow and 5, 8 and 10 mg/L as total nitrogen concentrations that facilities can meet by means of optimization or, for the four largest facilities, readily available treatment technology, meets the legal requirements of the CWA but was derived in order to balance the burden of treatment with the four largest facilities (currently generating more than half of the Massachusetts out-of-basin load) required to meet 5 mg/L concentration at design flow, and the remaining facilities with effluent limits that can be achieved through system optimization. In tiering the facilities, EPA considered the relative magnitude of flows from these facilities and observed that there was a significant divide between the four largest facilities and the remaining facilities (67 MGD for Springfield, 17.5 MGD for Holyoke, 17 MGD for Pittsfield and 15 MGD for Chicopee compared to the next largest at 8.6 MGD for North Hampton). The four largest facilities contribute 53% of the design flow for the out-of-basin watershed. EPA also observed that three of these facilities are on the main stem of the Connecticut River and Pittsfield is on the mainstem of the Housatonic. All these factors, in EPA's technical judgment, warranted the further additional assurance of meeting water quality standards provided by a more stringent numeric cap in loading that may necessitate a facility upgrade, as opposed to limits achievable through optimization only. EPA also notes that the four larger facilities will be able to spread the cost of any upgrade over a much larger user base.

EPA established the next tier at 5 MGD partly on the assumption POTWs of greater than that size are likely to already possess the technical capability, operator sophistication and administrative capacity needed to achieve more stringent effluent limitations via optimization requirements. To this point, EPA took notice of the fact that the 5 MGD threshold has some regulatory significance under EPA's regulations implementing the NPDES program, specifically pretreatment, where EPA determined that facilities of that size are significantly large enough to require a pretreatment program. EPA, of course, also took into account the relatively large magnitude of the loads associated with these facilities. Finally, EPA also took note of the fact that these facilities, though not serving communities as large as Springfield, Holyoke, Pittsfield and Chicopee, still have considerable ability to spread costs over user bases of considerable size.

EPA chose the 1 MGD tier because that corresponds to the definition of major POTW under NPDES regulations. Facilities above 1 MGD account for approximately 80% of the total out-of-basin load. Because the many facilities smaller than 1 MGD collectively account for a relatively small amount of the total load, EPA believes that optimization is reasonable for these facilities, given their comparatively small loads and user bases.

Finally, those facilities under 0.1 MGD are required to monitor and report data that may be used in future permitting cycles.

Thus, in arriving at its tiering determination, EPA considered a series of technical and environmental factors within its expertise, and also took into account equitable considerations. EPA acknowledges that the chosen tiers are not the only way to divide the out-of-basin TN allocations, but was not presented with any alternatives that capped the existing load based on design flow through the imposition of enforceable permit limits. For example, EPA considered, and rejected, the option to apply a limit based on 8 mg/L effluent limit for all facilities with design flow greater than 1 MGD (at their respective design flows) because that would result in an increase in the current loading and place a greater burden on facilities that service relatively small communities. The combined design flow for the 29 MA POTW facilities with design flow greater than 1 MGD is 196 MGD. Of this combined design flow, 60%, or 117 MGD consists of the design flow for the four largest POTWs. Under the selected permitting approach, the proportion of the permitted load from the four largest facilities will be 60% of the combined permitted load for all 29 MA facilities, consistent with the proportion of design flow. If all POTWs with design flow over 1 MGD had a concentration-based limit of 8 mg/L (or a load-based limit based on 8 mg/L and design flow), the proportion of the permitted load coming from the four largest facilities would increase from 60% of the total permitted load to 90%, shifting the burden of treatment significantly from larger to smaller facilities. In addition, the total permitted TN loading from those 29 facilities would increase from 8,100 lb/day under the chosen approach to 8,600 lb/day.

In addition to the effluent limits described above, EPA is also requiring all POTWs with a design flow of 0.1 MGD or greater to optimize for nitrogen removal to ensure that the aggregate 25% reduction is maintained or increased. The optimization condition in the Draft Permit requires the Permittee to evaluate alternative methods of operating their treatment plant to optimize the removal of nitrogen, and to describe previous and ongoing optimization efforts. Specifically, the Draft Permit requires an evaluation of alternative methods of operating the existing wastewater treatment facility to control total nitrogen levels, including, but not limited to, operational changes designed to enhance nitrification (seasonal and year-round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. This evaluation is required to be completed and submitted to EPA and MassDEP within one year of the effective date of the permit, along with a description of past and ongoing optimization efforts. The permit also requires implementation of optimization methods to ensure that the facility is operated in such a way that discharges of total nitrogen are minimized. The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies and track trends relative to previous years.

In addition to the rolling annual average total nitrogen effluent limit and optimization requirements, the Draft Permit includes weekly monitoring and average monthly reporting requirements for total nitrogen (TN), total Kjeldahl nitrogen (TKN), and total nitrite/nitrate nitrogen (NO_2/NO_3).

The limits applicable to each facility are based on the equation presented in Table 1 above and the numeric limit for each is either carried forward from their individual permit (if already included in the facility's individual permit) or is identified in Appendix E of the Draft General Permit as a new limit (if not already included in the facility's individual permit). The effluent limits are rolling annual average limits and compliance will be based on the average of the current average monthly load and the average monthly load of the previous 11 months. The

monitoring frequency in the Draft Permit is once per week.

Future Nitrogen Limits

The nitrogen annual loading limits in this Draft General Permit are intended to meet the requirements of the 2001 LIS TMDL, which was developed to address hypoxic conditions in the bottom waters of LIS. In December 2015, EPA signed a letter detailing a post-TMDL EPA nitrogen reduction strategy for waters in the LIS watershed. The strategy recognizes that more work may need to be done to reduce nitrogen levels, further improve DO conditions, and attain other related water quality standards in LIS, particularly in coastal embayments and the estuarine portions of rivers that flow into the Sound. EPA is working to establish nitrogen thresholds for Western LIS and several coastal embayments, including some of the receiving waters for discharges eligible for coverage under this General Permit. Documents regarding the EPA Nitrogen Reduction Strategy are available for public review on EPA's Long Island Sound website (http://longislandsoundstudy.net/issues-actions/water-quality/nitrogen-strategy/). Upon completion of establishing thresholds and assessing the water quality conditions of the estuarine waters that receive discharge from an eligible discharger under this General Permit, allocations of total nitrogen loadings may be lowered if further reductions are necessary resulting in a lower water quality-based effluent limit being established in a future permit action. If so, EPA anticipates exploring possible trading approaches for nitrogen loading in the Massachusetts portion of the LIS watershed.

EXHIBIT 1

NH, VT, MA Nitrogen Discharges to Long Island Sound Watershed

Summary of Massachusetts Out-Of-Basin Wastewater Treatment Plant and Industrial Discharger Total Nitrogen Effluent Data

Permit #	Name	Type	Design Flow (MGD)	2014-2018 Avg Flow (MGD)	2014 Average Load (lb/day)	2015 Average Load (lb/day)	2016 Average Load (lb/day)	2017 Average Load (lb/day)	2018 Average Load (lb/day)	2014-2018 Avg Load (lb/year)
Total Massachusetts Out-of-Basin Load			**262**	**146**	**11,528**	**11,215**	**9,767**	**10,557**	**10,631**	**10,740**
Total Massachusetts Connecticut River Load			**179.6**	**98**	**9,184**	**8,945**	**7,695**	**8,390**	**8,341**	**8,511**
MA0101613	SPRINGFIELD REGIONAL WTP	POTW	67.00	36.26	2,303	2,377	1,643	1,953	1,684	1,992
MA0101508	CHICOPEE WPC	POTW	15.50	7.83	2,220	2,092	1,854	1,872	1,895	1,987
MA0101630	HOLYOKE WPCF	POTW	17.50	8.05	584	644	687	747	593	651
MA0101214	GREENFIELD WPCF	POTW	3.20	3.23	436	467	460	386	482	446
MA0100994	GARDNER WWTF	POTW	5.00	2.89	413	470	377	455	404	424
MA0101818	NORTHAMPTON WWTP	POTW	8.60	3.85	489	412	355	393	453	420
MA0100218	AMHERST WWTP	POTW	7.10	3.76	456	411	335	342	377	384
MA0100455	SOUTH HADLEY WWTF	POTW	4.20	2.37	393	325	288	364	315	337
MA0101478	EASTHAMPTON WWTP	POTW	3.80	3.44	202	186	262	329	639	324
MA0101800	WESTFIELD WWTP	POTW	6.10	2.88	276	225	221	189	211	224
MA0110264	AUSTRALIS AQUACULTURE, LLC	IND	0.30	0.13	149	138	116	107	74	117
MA0101168	PALMER WPCF	POTW	5.60	1.47	142	92	84	100	125	109
MA0100137	MONTAGUE WWTF	POTW	1.80	0.84	107	78	55	215	78	107
MA0100099	HADLEY WWTP	POTW	0.54	0.38	73	76	65	109	67	78
MA0100889	WARE WWTP	POTW	1.00	0.55	62	89	87	72	78	77
MA0101257	ORANGE WWTP	POTW	1.10	0.98	72	62	58	91	91	75
MA0003697	BARNHARDT MANUFACTURING	IND	0.89	0.33	58	78	49	54	96	67
MA0103152	BARRE WWTF	POTW	0.30	0.19	77	81	50	50	49	61
MA0101567	WARREN WWTP	POTW	1.50	0.26	45	42	124	38	55	61
MA0000469	SEAMAN PAPER OF MASSACHUSETTS	IND	1.10	0.83	26	97	53	62	46	57
MA0100005	ATHOL WWTF	POTW	1.75	0.79	76	56	40	39	44	51

Permit #	Name	Type	Design Flow (MGD)	2014-2018 Avg Flow (MGD)	2014 Average Load (lb/day)	2015 Average Load (lb/day)	2016 Average Load (lb/day)	2017 Average Load (lb/day)	2018 Average Load (lb/day)	2014-2018 Avg Load (lb/year)
MA0101061	NORTH BROOKFIELD WWTP	POTW	0.62	0.32	62	51	40	47	50	50
MA0110043	MCLAUGHLIN STATE TROUT HATCHERY	IND	7.50	7.12	39	44	43	41	37	41
MA0100919	SPENCER WWTP	POTW	1.08	0.35	28	33	31	29	71	38

Summary of Massachusetts Out-Of-Basin Wastewater Treatment Plant and Industrial Discharger Total Nitrogen Effluent Data

Permit #	Name	Type	Design Flow (MGD)	2014-2018 Avg Flow (MGD)	2014 Average Load (lb/day)	2015 Average Load (lb/day)	2016 Average Load (lb/day)	2017 Average Load (lb/day)	2018 Average Load (lb/day)	2014-2018 Avg Load (lb/year)
MA0100862	WINCHENDON WPCF	POTW	1.10	0.50	25	33	29	48	40	35
MA0101290	HATFIELD WWTF	POTW	0.50	0.17	51	37	28	28	27	34
MA0101052	ERVING WWTP #2	POTW	2.70	1.78	35	38	38	33	25	34
MA0100340	TEMPLETON WWTF	POTW	2.80	0.27	19	35	18	21	35	26
MAG580004	SOUTH DEERFIELD WWTP	POTW	0.85	0.37	15	33	18	18	27	22
MA0040207	CHANG FARMS INC	IND	0.65	0.22	22	15	34	20	20	22
MA0110035	MCLAUGHLIN/SUNDERLAND STATE FISH HATCHERY	IND	2.10	2.16	25	22	19	20	25	22
MA0102148	BELCHERTOWN WRF	POTW	1.00	0.36	61	13	11	11	5.6	20
MAG580002	SHELBURNE WWTF	POTW	0.25	0.16	15	13	17	17	21	17
MAG580005	SUNDERLAND WWTF	POTW	0.50	0.17	20	12	13	10	9.3	13
MAG580001	OLD DEERFIELD WWTP	POTW	0.25	0.068	13	14	13	12	12	13
MA0110051	MCLAUGHLIN/BITZER STATE TROUT HATCHERY	IND	1.43	1.70	23	12	12	8.2	8.2	13
MA0032573	NORTHFIELD MT HERMON SCHOOL WWTP	POTW	0.45	0.072	22	7.6	15	10	10	13
MA0100102	HARDWICK WPCF	POTW	0.23	0.12	8.2	5.9	13	4.3	17	10
MA0100200	NORTHFIELD WWTF	POTW	0.28	0.080	3.8	6.8	6.5	10	14	8.1
MA0101516	ERVING WWTP #1	POTW	1.02	0.14	7.2	6.1	3.7	10	7.5	6.9
MA0102776	ERVING WWTP #3	POTW	0.010	0.0049	6.1	2.9	6.9	8.0	7.5	6.3
MA0102431	HARDWICK WWTP	POTW	0.040	0.016	7.4	1.5	11	6.9	2.3	5.9
MAG580003	CHARLEMONT WWTF	POTW	0.050	0.016	7.5	4.2	4.8	4.8	4.8	5.2
MA0101265	HUNTINGTON WWTP	POTW	0.20	0.067	4.6	4.1	5.6	4.3	5.2	4.7
MA0100188	MONROE WWTF	POTW	0.020	0.013	*1.4*	1.4	1.2	2.3	1.7	1.6
MA0000272	PAN AM RAILWAYS YARD	IND	0.015	0.011	0.06	0.13	0.12	0.47	0.18	0.19
MA0001350	LS STARRETT PRECISION TOOLS	IND	0.025	0.014	0.03	0.0	0.08	0.07	0.04	0.05
MA0100161	ROYALSTON WWTP	POTW	0.039	0.01298	*0.9*	0.49	0.43	0.49	0.60	0.59
Total Massachusetts Housatonic Load			**29.4**	**18**	**1,667**	**1,605**	**1,509**	**1,612**	**1,707**	**1,626**
MA0101681	PITTSFIELD WWTF	POTW	17.00	10.55	1,179	1,176	1,145	1,245	1,319	1,213
MA0000671	CRANE WWTP	POTW	3.10	3.07	155	142	108	116	107	126

Summary of Massachusetts Out-Of-Basin Wastewater Treatment Plant and Industrial Discharger Total Nitrogen Effluent Data

Permit #	Name	Type	Design Flow (MGD)	2014-2018 Avg Flow (MGD)	2014 Average Load (lb/day)	2015 Average Load (lb/day)	2016 Average Load (lb/day)	2017 Average Load (lb/day)	2018 Average Load (lb/day)	2014-2018 Avg Load (lb/year)
MA0101524	GREAT BARRINGTON WWTF	POTW	3.20	0.97	110	120	100	99	124	111
MA0100935	LENOX CENTER WWTF	POTW	1.19	0.61	49	67	59	71	78	65
MA0001848	ONYX SPECIALTY PAPERS INC - WILLOW MILL	IND	1.10	0.94	51	39	44	33	22	38
MA0005011	PAPERLOGIC TURNERS FALLS MILL(6)	IND	0.70	0.73	85	17	12	6.5	Term	30
MA0100153	LEE WWTF	POTW	1.25	0.64	18	17	14	15	35	20
MA0101087	STOCKBRIDGE WWTP	POTW	0.30	0.15	10	15	16	13	10	13
MA0103110	WEST STOCKBRIDGE WWWTF	POTW	0.076	0.014	*5.3*	*3.8*	4.3	5.0	3.7	4.4
MA0001716	MEADWESTVACO CUSTOM PAPERS LAUREL MILL	IND	1.5	0.34	4.3	7.9	5.7	7.2	7.8	6.6
Total Massachusetts Thames River Load			**11.8**	**6**	**677**	**666**	**564**	**556**	**583**	**609**
MA0100439	WEBSTER WWTF	POTW	6.00	2.97	389	393	328	292	344	349
MA0100901	SOUTHBRIDGE WWTF	POTW	3.77	1.97	*178*	149	154	151	130	152
MA0101141	CHARLTON WWTF	POTW	0.45	0.21	40	75	41	68	70	59
MA0100421	STURBRIDGE WPCF	POTW	0.75	0.51	44	21	18	19	20	24
MA0101796	LEICESTER WATER SUPPLY WWTF	POTW	0.35	0.19	24	27	22	26	19	24
MA0100170	OXFORD ROCHDALE WWTP	POTW	0.50	0.24	2.4	1.0	0.23	0.57	0.49	0.9

NOTES:

1) italics = estimated load based on average conc & flow from other years, or if no data for any years, assumed concentration of 19.6 mg/L.

2) The loads represent annual totals, based on annual daily average flow and daily average nitrogen concentration.

3) Term = Permit was terminated in that year

4) This summary only includes POTWs and Industrial sources for which there was nitrogen monitoring at the outfalls for treated effluent and/or process wastewater.

Summary of New Hampshire Out-Of-Basin Wastewater Treatment Plant and Industrial Discharger Total Nitrogen Effluent Data

Permit #	Name	Type	Design Flow (MGD)	2014-2018 Avg Flow (MGD)	2014 Average Load (lb/day)	2015 Average Load (lb/day)	2016 Average Load (lb/day)	2017 Average Load (lb/day)	2018 Average Load (lb/day)	2014-2018 Avg Load (lb/day)
Total New Hampshire Out-of-Basin Load			**31.5**	**18.6**	**1,662**	**1,457**	**1,370**	**1,555**	**1,154**	**1,440**
NH0000621	BERLIN STATE FISH HATCHERY	IND	6.1	6.30	8.8	13	13	15	8.7	12
NH0000744	NH DES (TWIN MTN STATE FISH HATCHERY)	IND	1.0	0.78	2.0	5.8	6.2	5.5	5.1	4.9
NH0100099	HANOVER WWTF	POTW	2.3	1.30	*341*	*341*	313	350	361	341
NH0100145	LANCASTER WWTF	POTW	1.2	0.79	84	78	45	72	63	68
NH0100153	LITTLETON WWTP	POTW	1.5	0.69	32	36	24	31	45	34
NH0100200	NEWPORT WWTF	POTW	1.3	0.59	97	63	80	80	79	80
NH0100366	LEBANON WWTF	POTW	3.2	1.49	*136*	*136*	132	127	152	137
NH0100382	HINSDALE WWTP	POTW	0.3	0.19	*18*	17	11	20	16	16
NH0100510	WHITEFIELD WWTF	POTW	0.2	0.08	35	22	15	18	24	23
NH0100544	SUNAPEE WWTF	POTW	0.6	0.40	*32*	*32*	*32*	50	33	35
NH0100765	CHARLESTOWN WWTP	POTW	1.1	0.28	22	13	12	19	22	17
NH0100790	KEENE WWTF	POTW	6.0	2.89	*533*	*397*	*394*	*452*	40	363
NH0101052	TROY WWTF	POTW	0.3	0.08	23	15	12	13	25	18
NH0101150	WEST SWANZEY WWTP	POTW	0.2	0.07	6.1	6.4	7.8	7.8	15	8.7
NH0101168	MERIDEN VILLAGE WATER DISTRICT	POTW	0.1	0.03	0.53	2.5	1.4	2.9	1.3	1.7
NH0101257	CLAREMONT WWTF	POTW	3.9	1.51	*161*	*161*	*161*	163	146	158
NH0101392	BETHLEHEM VILLAGE WWTP (1)	POTW	0.3	0.21	25	26	25	29	25	26
NHG580226	GROVETON WWTP	POTW	0.4	0.12	18	13	10	12	14	13
NHG580315	COLEBROOK WWTP	POTW	0.5	0.22	26	23	21	31	31	26
NHG580391	CHESHIRE COUNTY MAPLEWOOD NURSING HOME	POTW	0.040	0.02	2.1	1.6	1.3	1.5	1.3	1.5
NHG580404	WINCHESTER WWTP	POTW	0.28	0.14	6.1	11	3.9	13	8.3	8.3
NHG580421	LISBON WWTF	POTW	0.3	0.12	26	23	19	17	17	20
NHG580536	STRATFORD VILLAGE SYSTEM	POTW	0.1	0.01	2.2	1.9	3.9	2.5	2.8	2.7
NHG580978	WOODSVILLE WWTF	POTW	0.3	0.19	22	15	19	19	13	18
NHG581206	NORTHUMBERLAND VILLAGE WPCF	POTW	0.1	0.04	2.7	3.3	3.5	2.6	3.1	3.0
NHG581214	STRATFORD-MILL HOUSE	POTW	0.0	0.01	1.4	1.5	2.2	1.8	2.3	1.8
NHG581249	LANCASTER GRANGE WWTP	POTW	0.0	0.00	0.45	0.53	0.45	0.49	0.44	0.47

NOTES:

1) *italics* = estimated load based on average conc & flow from other years, or if no data for any years, assumed concentration of 19.6 mg/L.

2) The loads represent annual totals, based on annual daily average flow and daily average nitrogen concentration.

3) Term = Permit was terminated in that year

4) This summary only includes POTWs and Industrial sources for which there was nitrogen monitoring at the outfalls for treated effluent and/or process wastewater.

Summary of Vermont Out-Of-Basin Wastewater Treatment Plant and Industrial Discharger Total Nitrogen Effluent Data

Permit #	Name	Type	Design Flow (MGD)	2014-2018 Avg Flow (MGD)	2014 load (lb/day)	2015 load (lb/day)	2016 load (lb/day)	2017 load (lb/day)	2018 load (lb/day)	2014-2018 Avg Load (lb/day)
	Total Vermont Out-of-Basin Load		**18.3**	**7.8**	**1,273**	**1,255**	**1,146**	**1,221**	**1,421**	**1,263**
VT0000019	WEIDMANN ELECTRICAL TECHNOLOGY INC	IND	0.25	0.15	2.4	1.4	1.4	1.2	1.7	1.6
VT0000108	PUTNEY PAPER COMPANY MILL & LAGOONS	IND	0.28	0.16	22	26	20	22	17	22
VT0000248	FIBERMARK	IND	2.00	1.06	117	82	89	106	92	97
VT0100013	BELLOWS FALLS WWTF	POTW	1.40	0.44	136	136	136	102	179	138
VT0100048	BETHEL	POTW	0.13	0.06	10.4	4.0	2.4	6.5	3.5	5.4
VT0100064	BRATTLEBORO WWTF	POTW	3.01	1.27	487	487	446	501	421	469
VT0100081	CHESTER MTP	POTW	0.19	0.16	16	5.0	4.5	5.6	7.6	7.6
VT0100145	LUDLOW WWTF	POTW	0.71	0.37	35	27	35	41	42	36
VT0100277	PUTNEY	POTW	0.09	0.05	16	16	11	16	21	16
VT0100285	RANDOLPH	POTW	0.41	0.17	23	23	21	20	28	23
VT0100374	SPRINGFIELD WWTF	POTW	2.20	0.98	133	133	133	120	130	130
VT0100447	WINDSOR-WESTON HEIGHTS	POTW	0.02	0.01	0.40	0.53	1.2	0.88	1.0	0.8
VT0100579	ST JOHNSBURY	POTW	1.60	0.83	34	23	13	24	146	48
VT0100595	LYNDON WWTP	POTW	0.76	0.15	21	21	16	24	21	20
VT0100625	CANAAN MTP	POTW	0.19	0.10	17	15	16	19	17	17
VT0100633	DANVILLE WPCF	POTW	0.07	0.03	2.9	3.5	7.6	4.4	4.3	4.5
VT0100706	WILMINGTON WWTP	POTW	0.15	0.08	3.8	15.9	10.0	4.7	17.2	10
VT0100731	READSBORO WPC	POTW	0.76	0.04	3.6	3.2	2.8	3.8	4.0	3.5
VT0100749	S. WOODSTOCK WWTF	POTW	0.06	0.01	1.9	1.9	0.7	1.2	3.9	1.9
VT0100757	WOODSTOCK WWTP	POTW	0.46	0.22	25	23	24	26	22	24
VT0100765	WOODSTOCK - TAFTSVILLE	POTW	0.02	0.00	0.32	0.24	0.20	0.55	0.87	0.44
VT0100803	BRADFORD WPCP	POTW	0.15	0.08	9.1	9.1	7.7	9.4	8.5	8.8
VT0100846	BRIDGEWATER WWTF	POTW	0.05	0.01	1.1	0.91	1.0	1.1	1.1	1.1
VT0100854	ROYALTON WWTF	POTW	0.08	0.02	5.2	4.6	4.7	7.7	5.0	5.4
VT0100862	CAVENDISH WWTF	POTW	0.16	0.06	15	10	9	11	15	12
VT0100919	WINDSOR WWTF	POTW	1.13	0.25	69	69	66	65	71	68
VT0100943	CHELSEA WWTF	POTW	0.07	0.02	8.2	8.2	4.8	8.9	9.9	8.0
VT0100951	RYEGATE FIRE DEPARTMENT .#2	POTW	0.01	0.00	0.55	1.1	1.9	2.1	0.76	1.3
VT0100978	HARTFORD - QUECHEE	POTW	0.31	0.22	24	53	12	12	10	22
VT0101010	HARTFORD WWTF	POTW	1.23	0.61	11	31	30	34	89	39
VT0101044	WHITINGHAM(JACKSONVILLE)	POTW	0.06	0.02	3.2	3.5	3.4	2.8	3.1	3.2
VT0101061	LUNENBURG FIRE DISTRICT #2	POTW	0.09	0.06	7.6	6.9	5.6	3.2	7.8	6.2
VT0101109	WHITINGHAM	POTW	0.02	0.01	1.2	1.4	1.5	1.2	3.0	1.7
VT0101141	SHERBURNE WPCF	POTW	0.31	0.08	8.9	8.3	7.7	10	16	10

NOTES:

1) *italics* = estimated load based on average conc & flow from other years, or if no data for any years, assumed concentration of 19.6 mg/L.

2) The loads represent annual totals, based on annual daily average flow and daily average nitrogen concentration.

3) Term = Permit was terminated in that year

4) This summary only includes POTWs and Industrial sources for which there was nitrogen monitoring at the outfalls for treated effluent and/or process wastewater.

EPA REGION 1 NPDES PERMITTING APPROACH FOR PUBLICLY OWNED TREATMENT WORKS THAT INCLUDE MUNICIPAL SATELLITE SEWAGE COLLECTION SYSTEMS

This regional interpretative statement provides notice to the public of EPA Region 1's interpretation of the Clean Water Act ("CWA" or "Act") and implementing regulations, and advises the public of relevant policy considerations, regarding the applicability of the National Pollutant Discharge Elimination System ("NPDES") program to publicly owned treatment works ("POTWs") that include municipal satellite sewage collection systems ("regionally integrated POTWs"). When issuing NPDES permits to these types of sanitary sewer systems, it is EPA Region 1's practice to include and regulate the owners/operators of the municipal satellite collection systems through a co-permitting structure. This interpretative statement is intended to explain, generally, the basis for this practice. EPA Region 1's decision in any particular case will be made by applying the law and regulations on the basis of specific facts when permits are issued.

EPA has set out a national policy goal for the nation's sanitary sewer systems to adhere to strict design and operational standards:

> "Proper [operation and maintenance] of the nation's sewers is integral to ensuring that wastewater is collected, transported, and treated at POTWs; and to reducing the volume and frequency of …[sanitary sewer overflow] discharges. Municipal owners and operators of sewer systems and wastewater treatment facilities need to manage their assets effectively and implement new controls, where necessary, as this infrastructure continues to age. Innovative responses from all levels of government and consumers are needed to close the gap."[1]

Because ownership/operation of a regionally integrated POTW is divided among multiple parties, the owner/operator of the treatment plant many times lacks the means to implement comprehensive, system-wide operation and maintenance ("O & M") procedures. Failure to properly implement O & M measures in a POTW can cause, among other things, excessive extraneous flow (*i.e.*, inflow and infiltration) to enter, strain and occasionally overload treatment system capacity. This failure not only impedes EPA's national policy goal concerning preservation of the nation's wastewater infrastructure assets, but also frustrates achievement of the water quality- and technology-based requirements of CWA § 301 to the extent it results in sanitary sewer overflows and degraded treatment plant performance, with adverse impacts on human health and the environment.

In light of these policy objectives and legal requirements, it is EPA Region 1's permitting practice to subject all portions of the POTW to NPDES requirements in order to ensure that the treatment system as a whole is properly operated and maintained and that human health and water quality impacts resulting from excessive extraneous flow are minimized. The approach of addressing O&M concerns in a regionally integrated treatment works by adding municipal

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[1] *See Report to Congress: Impacts and Control of CSOs and SSOs* (EPA 833-R-04-001) (2004), at p. 10-2. *See also* "1989 National CSO Control Strategy," 54 Fed. Reg. 37371 (September 8, 1989).

satellite collection systems as co-permittees is consistent with the definition of "publicly owned treatment works," which by definition includes sewage collection systems. Under this approach, the POTW in its entirety is subject to NPDES regulation as a point source discharger under the Act. This entails imposition of permitting requirements applicable to the POTW treatment plant along with a more limited set of conditions applicable to the connected municipal satellite collection systems.

The factual and legal basis for the Region's position is set forth in greater detail in *Attachment A*.

Attachment A

ANALYSIS SUPPORTING EPA REGION 1 NPDES PERMITTING APPROACH FOR PUBLICLY OWNED TREATMENT WORKS THAT INCLUDE MUNICIPAL SATELLITE SEWAGE COLLECTION SYSTEMS

Exhibit A	List of regional centralized POTW treatment plants and municipal satellite collection systems subject to the co-permittee policy
Exhibit B	Analysis of extraneous flow trends for representative systems
Exhibit C	List of municipal satellite collection systems that have had SSOs
Exhibit D	Form of Regional Administrator's waiver of permit application requirements for municipal satellite collection systems

Introduction

On May 28, 2010, the U.S. EPA Environmental Appeals Board ("Board") issued a decision remanding to the Region certain NPDES permit provisions that included and regulated satellite collection systems as co-permittees. *See In re Upper Blackstone Water Pollution Abatement District*, NPDES Appeal Nos. 08-11 to 08-18 & 09-06, 14 E.A.D. __ (*Order Denying Review in Part and Remanding in Part*, EAB, May 28, 2010).[2] While the Board "did not pass judgment" on the Region's position that its NPDES jurisdiction encompassed the entire POTW and not only the treatment plant, it held that "where the Region has abandoned its historical practice of limiting the permit only to the legal entity owning and operating the wastewater treatment plant, the Region had not sufficiently articulated in the record of this proceeding the statutory, regulatory, and factual bases for expanding the scope of NPDES authority beyond the treatment plant owner/operator to separately owned/operated collection systems that do not discharge directly to waters of the United States, but instead that discharge to the treatment plant." *Id.*, *slip op.* at 2, 18. In the event the Region decided to include and regulate municipal satellite collection systems as co-permittees in a future permit, the Board posed several questions for the Region to address in the analysis supporting its decision:

(1) Is the scope of NPDES authority limited to owners/operators of the treatment plant, or does the authority extend to owners/operators of the municipal satellite collection systems that comprise the wider POTW?

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[2] The decision is available on the Board's website via the following link: http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/30b93f139d3788908525706c005185b4/34e841c87f346d94852577360068976f!OpenDocument.

(2) If the latter, how far up the collection system does NPDES jurisdiction reach, *i.e.*, where does the "collection system" end and the "user" begin?

(3) Do municipal satellite collection systems "discharge [ ] a pollutant" within the meaning of the statute and regulations?

(4) Are municipal satellite collection systems "indirect dischargers" and thus excluded from NPDES permitting requirements?

(5) Is the Region's rationale for regulating municipal satellite collection systems as co-permittees consistent with the references to "municipality" in the regulatory definition of POTW, and the definition's statement that "[t]he term also means the municipality…which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works"?

(6) Is the Region's rationale consistent with the permit application and signatory requirements under NPDES regulations?

See *Blackstone, slip op.* at 18, 20, n. 17.

This regional interpretative statement is, in part, a response to the Board's decision. It details the legal and policy bases for regulating as co-permittees publicly owned treatment works ("POTWs") that include municipal satellite collection systems. Region 1's analysis is divided into five sections. First, the Region provides context for the co-permitting approach by briefly describing the health and environmental impacts associated with poorly maintained sanitary sewer systems. Second, the Region outlines its evolving permitting practice regarding regionally integrated POTWs, particularly its attempts to ensure that such entity's municipal satellite collection systems are properly maintained and operated. Third, the Region explains the legal authority to include municipal satellite collection systems as co-permittees when permitting regionally integrated POTWs. In this section, the Region answers the questions posed by the Board in the order presented above. Fourth, the Region sets forth the basis for the specific conditions to which the municipal satellite collection systems are subject as co-permittees. Finally, the Region discusses other considerations informing its decision to employ a co-permittee structure when permitting regionally integrated POTWs.

I. Background

A sanitary sewer system (SSS) is a wastewater collection system owned by a state or municipality that is designed to collect and convey only sanitary wastewater (domestic sewage from homes as well as industrial and commercial wastewater).[3] The purpose of these systems is

[3] A combined sewer, on the other hand, is a type of sewer system that collects and conveys sanitary sewage and stormwater runoff in a single-pipe system to a POTW treatment plant. *See generally* Report to Congress: Impacts and Control of CSOs and SSOs (EPA 833-R-04-001) (2004), from which EPA Region 1 has drawn this background material.

to transport wastewater uninterrupted from its source to a treatment facility. Developed areas that are served by sanitary sewers often also have a separate storm sewer system (*e.g.*, storm drains) that collects and conveys runoff, street wash waters and drainage and discharges them directly to a receiving water (*i.e.*, without treatment at a POTW). While sanitary sewers are not designed to collect large amounts of runoff from precipitation events or provide widespread drainage, they typically are built with some allowance for higher flows that occur during periods of high groundwater and storm events. They are thus able to handle minor and controllable amounts of extraneous flow (*i.e.*, inflow and infiltration, or I/I) that enter the system. Inflow generally refers to water other than wastewater—typically precipitation like rain or snowmelt—that enters a sewer system through a direct connection to the sewer. Infiltration generally refers to other water that enters a sewer system from the ground, for example through defects in the sewer.

Municipal sanitary sewer collection systems can consist of a widespread network of pipes and associated components (*e.g.*, pump stations). These systems provide wastewater collection service to the community in which they are located. In some situations, the municipality that owns the collector sewers may not provide treatment of wastewater, but only conveys its wastewater to a collection system that is owned and operated by a different municipal entity (such as a regional sewer district). This is known as a satellite community. A "satellite" community is a sewage collection system owner/operator that does not have ownership of the treatment facility and a specific or identified point of discharge but rather the responsibility to collect and convey the community's wastewater to a POTW treatment plant for treatment. *See* 75 Fed. Reg. 30395, 30400 (June 1, 2010).

Municipal sanitary sewer collection systems play a critical role in protecting human health and the environment. Proper operation and maintenance of sanitary sewer collection systems is integral to ensuring that wastewater is collected, transported, and treated at POTW treatment plants. Through effective operation and maintenance, collection system operators can maintain the capacity of the collection system; reduce the occurrence of temporary problem situations such as blockages; protect the structural integrity and capacity of the system; anticipate potential problems and take preventive measures; and indirectly improve treatment plant performance by minimizing deterioration due to I/I-related hydraulic overloading.

Despite their critical role in the nation's infrastructure, many collection systems exhibit poor performance and are subjected to flows that exceed system capacity. Untreated or partially treated overflows from a sanitary sewer system are termed "sanitary sewer overflows" (SSOs). SSOs include releases from sanitary sewers that reach waters of the United States as well as those that back up into buildings and flow out of manholes into city streets.

There are many underlying reasons for the poor performance of collection systems. Much of the nation's sanitary sewer infrastructure is old, and aging infrastructure has deteriorated with time. Communities also sometimes fail to provide capacity to accommodate increased sewage delivery and treatment demand from increasing populations. Furthermore, institutional arrangements relating to the operation of sewers can pose barriers to coordinated action, because many

municipal sanitary sewer collection systems are not entirely owned or operated by a single municipal entity.

The performance and efficiency of municipal collection systems influence the performance of sewage treatment plants. When the structural integrity of a sanitary sewer collection system deteriorates, large quantities of infiltration (including rainfall-induced infiltration) and inflow can enter the collection system, causing it to overflow. These extraneous flows are among the most serious and widespread operational challenges confronting treatment works.[4]

Infiltration can be long-term seepage of water into a sewer system from the water table. In some systems, however, the flow characteristics of infiltration can resemble those of inflow, *i.e.*, there is a rapid increase in flow during and immediately after a rainfall event, due, for example, to rapidly rising groundwater. This phenomenon is sometimes referred to as rainfall-induced infiltration.

Sanitary sewer systems can also overflow during periods of normal dry weather flows. Many sewer system failures are attributable to natural aging processes or poor operation and maintenance. Examples include years of wear and tear on system equipment such as pumps, lift stations, check valves, and other moveable parts that can lead to mechanical or electrical failure; freeze/thaw cycles, groundwater flow, and subsurface seismic activity that can result in pipe movement, warping, brittleness, misalignment, and breakage; and deterioration of pipes and joints due to root intrusion or other blockages.

Inflow and infiltration impacts are often regional in nature. Satellite collection systems in the communities farthest from the POTW treatment plant can cause sanitary sewer overflows ("SSOs") in communities between them and the treatment plant by using up capacity in the interceptors. This can cause SSOs in the interceptors themselves or in the municipal sanitary sewers that lead to them. The implication of this is that corrective solutions often must also be regional in scope to be effective.

The health and environmental risks attributed to SSOs vary depending on a number of factors including location and season (potential for public exposure), frequency, volume, the amount and type of pollutants present in the discharge, and the uses, conditions, and characteristics of the receiving waters. The most immediate health risks associated with SSOs to waters and other areas with a potential for human contact are associated with exposure to bacteria, viruses, and other pathogens.

Human health impacts occur when people become ill due to contact with water or ingestion of water or shellfish that have been contaminated by SSO discharges. In addition, sanitary sewer systems can back up into buildings, including private residences. These discharges provide a

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[4] In a 1989 Water Pollution Control Federation survey, 1,003 POTWs identified facility performance problems. Infiltration and inflow was the most frequently cited problem, with 85 percent of the facilities reporting I/I as a problem. I/I was cited as a major problem by 41 percent of the facilities (32 percent as a periodic problem). [BP: Is there anything more recent?]

direct pathway for human contact with untreated wastewater. Exposure to land-based SSOs typically occurs through the skin via direct contact. The resulting diseases are often similar to those associated with exposure through drinking water and swimming (*e.g.*, gastroenteritis), but may also include illness caused by inhaling microbial pathogens. In addition to pathogens, raw sewage may contain metals, synthetic chemicals, nutrients, pesticides, and oils, which also can be detrimental to the health of humans and wildlife.

II. EPA Region 1 Past Practice of Permitting POTWs that Include Municipal Satellite Collection Systems

EPA Region 1's practice in permitting regionally integrated POTWs has developed in tandem with its increasing focus on addressing I/I in sewer collection systems, in response to the concerns outlined above. Up to the early 1990s, POTW permits issued by Region 1 generally did not include specific requirements for collection systems. When I/I and the related issue of SSOs became a focus of concern both nationally and within the region in the mid-1990s, Region 1 began adding general requirements to POTW permits that required the permittees to "eliminate excessive infiltration and inflow" and provide an annual "summary report" of activities to reduce I/I. As the Region gathered more information and gained more experience in assessing these reports and activities, it began to include more detailed requirements and reporting provisions in these permits.

MassDEP also engaged in a parallel effort to address I/I, culminating in 2001 with the issuance of MassDEP Policy No. BRP01-1, "Interim Infiltration and Inflow Policy." Among other provisions, this policy established a set of standard NPDES permit conditions for POTWs that included development of an I/I control plan (including funding sources, identification and prioritization of problem areas, and public education programs) and detailed annual reporting requirements (including mapping, reporting of expenditures and I/I flow calculations). Since September 2001, these requirements have been the basis for the standard operation and maintenance conditions related to I/I.

Regional treatment plants presented special issues as I/I requirements became more specific, as it is generally the member communities, rather than the regional sewer district, that own the collection systems that are the primary source of I/I. Before the focus on I/I, POTW permits did not contain specific requirements related to the collection system component of POTWs. Therefore, when issuing NPDES permits to authorize discharges from regionally integrated treatment POTWs, EPA Region 1 had generally only included the legal entity owning and/or operating the regionally centralized wastewater treatment plant. As the permit conditions were focused on the treatment plant itself, this was sufficient to ensure that EPA had authority to enforce the permit requirements.

In implementing the I/I conditions, Region 1 initially sought to maintain the same structure, placing the responsibility on the regional sewer district to require I/I activities by the contributing systems and to collect the necessary information from those systems for submittal to EPA. MassDEP's 2001 Interim I/I Policy reflected this approach, containing a condition for regional systems:

> ((FOR REGIONAL FACILITIES ONLY)) The permittee shall require, through appropriate agreements, that all member communities develop and implement infiltration and inflow control plans sufficient to ensure that high flows do not cause or contribute to a violation of the permittees effluent limitations, or cause overflows from the permittees collection system.

As existing NPDES permittees, the POTW treatment plants were an obvious locus of regulation. The Region assumed the plants would be in a position to leverage preexisting legal and/or contractual relationships with the satellite collection systems they serve to perform a coordinating function, and that utilizing this existing structure would be more efficient than establishing a new system of direct reporting to EPA by the collection system owners. The Region also believed that the owner/operator of the POTW treatment plant would have an incentive to reduce flow from contributing satellite systems because doing so would improve treatment plant performance and reduce operation costs. While relying on this cooperative approach, however, EPA Region 1 also asserted that it had the authority to require that POTW collection systems be included as NPDES permittees and that it would do so if it proved necessary. Indeed, in 2001 Region 1 acceded to Massachusetts Water Resources Authority's ("MWRA") request that the contributing systems to the MWRA Clinton wastewater treatment plant ("WWTP") be included as co-permittees, based on evidence provided by MWRA that its specific relationship with those communities would not permit it to run an effective I/I reduction program for these collection systems. EPA Region 1 also put satellite collection systems on notice that they would be directly regulated through legally enforceable permit requirements if I/I reductions were not pursued or achieved.

In time, the Region realized that its failure to assert direct jurisdiction over municipal satellite dischargers was becoming untenable in the face of mounting evidence that cooperative (or in some cases non-existent) efforts on the part of the POTW treatment plant and associated satellites were failing to comprehensively address the problem of extraneous flow entering the POTW. The ability and/or willingness of regional sewer districts to attain meaningful I/I efforts in their member communities varied widely. The indirect structure of the requirements also tended to make it difficult for EPA to enforce the implementation of meaningful I/I reduction programs.

It became evident to EPA Region 1 that a POTW's ability to comply with CWA requirements depended on successful operation and maintenance of not only the treatment plant but also the collection system. For example, the absence of effective I/I reduction and operation/maintenance programs was impeding the Region's ability to prevent or mitigate the human health and water quality impacts associated with SSOs. *See Exhibit B* (Municipal satellite collection systems with SSOs). Additionally, these excess flows stressed POTW treatment plants from a hydraulic capacity and performance standpoint, adversely impacting effluent quality. *See Exhibit C* (Analysis of extraneous flow trends for representative systems). Addressing these issues in regional systems was essential, as these include most of the largest systems in terms of flow, population served and area covered, and serve the largest population centers.

The Region's practice of imposing NPDES permit conditions on the municipal collection systems in addition to the treatment plant owner/operator represents a necessary and logical progression in its continuing effort to effectively address the serious problem of I/I in sewer collection systems.[5] In light of its past permitting experience and the need to effectively address the problem of extraneous flow on a system-wide basis, Region 1 decided that it was necessary to refashion permits issued to regionally integrated POTWs to encompass all owners/operators of the treatment works (*i.e.*, the regional centralized POTW treatment plant and the municipal satellite collection systems.[6] Specifically, Region 1 determined that the satellite systems should be subject as co-permittees to a limited set of O&M-related conditions on permits issued for discharges from regionally integrated treatment works. These conditions pertain only to the portions of the POTW collection system that the satellites own. This ensures maintenance and pollution control programs are implemented with respect to all portions of the POTW. Accordingly, since 2005, Region 1 has generally included municipal satellite collection systems as co-permittees for limited purposes, in addition to the owner/operator of the treatment plant as the main permittee subject to the full array of NPDES requirements, including secondary treatment and water-quality based effluent limitations. The Region has identified 25 permits issued by the Region to POTWs in New Hampshire and Massachusetts that include municipal satellite collection systems as co-permittees. *See Exhibit A*. The 25 permits include a total of 55 satellite collection systems as co-permittees.

III. Legal Authority

The Region's prior and now superseded practice of limiting the permit only to the legal entity owning and/or operating the wastewater treatment plant had never been announced as a regional policy or interpretation. Similarly, the Region's practice of imposing NPDES permit conditions on the municipal collection systems in addition to the treatment plant owner/operator has also never been expressly announced as a uniform, region-wide policy or interpretation. Upon consideration of the Board's decision, described above, EPA Region 1 has decided to supply a clearer, more detailed explanation regarding its use of a co-permittee structure when issuing NPDES permits to regionally integrated POTWs. In this section, the Region addresses the questions posed by the Board in the *Upper Blackstone* decision referenced above.

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[5] Although EPA Region 1 has in the past issued NPDES permits only to the legal entities owning and operating the wastewater treatment plant (*i.e.*, only a portion of the "treatment works"), the Region's reframing of permits to include municipal satellite collection systems does not represent a break or reversal from its historical legal position. EPA Region 1 has never taken the legal position that the satellite collection systems are beyond the reach of the CWA and the NPDES permitting program. Rather, the Region as a matter of discretion had merely never determined it necessary to exercise its statutory authority to directly reach these facilities in order to carry out its NPDES permitting obligations under the Act.

[6] EPA has "considerable flexibility in framing the permit to achieve a desired reduction in pollutant discharges." *Natural Resources Defense Council, Inc. v. Costle*, 568 F.2d 1369, 1380 (D.C.Cir.1977). ("[T]his ambitious statute is not hospitable to the concept that the appropriate response to a difficult pollution problem is not to try at all.").

(1) Is the scope of NPDES authority limited to owners/operators of the treatment plant, or does the authority extend to owners/operators of the municipal satellite collection systems that comprise the wider POTW?

The scope of NPDES authority extends beyond the owners/operators of the treatment plant to include to owners/operators of portions of the wider POTW, for the reasons discussed below.

The CWA prohibits the "discharge of any pollutant by any person" from any point source to waters of the United States, except, *inter alia,* in compliance with an NPDES permit issued by EPA or an authorized state pursuant to Section 402 of the CWA. CWA § 301, 402(a)(1); 40 C.F.R. § 122.1(b). Where there is a discharge of pollutants, NPDES regulations require the "operator" of the discharging "facility or activity" to obtain a permit in circumstances where the operator is different from the owner. *Id.* § 122.21(b). "Owner or operator" is defined as "the owner or operator of any 'facility or activity' subject to regulation under the NPDES program," and a "facility or activity" is "any NPDES 'point source' or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program." *Id.* § 122.2.

"Publicly owned treatment works" are facilities subject to the NPDES program. Statutorily, POTWs as a class must meet performance-based requirements based on available wastewater treatment technology. *See* CWA § 402(a)(1) ("[t]he Administrator may…issue a permit for the discharge of any pollutant….upon condition that such discharge will meet (A) all applicable requirements under [section 301]…"); § 301(b)(1)(B) ("In order to carry out the objective of this chapter there shall be achieved…for publicly owned treatment works in existence on July 1, 1977...effluent limitations based upon secondary treatment[.]"); *see also* 40 C.F.R. pt 133. In addition to secondary treatment requirements, POTWs are also subject to water quality-based effluent limits if necessary to achieve applicable state water quality standards. *See* CWA § 301(b)(1)(C). *See also* 40 C.F.R. § 122.44(a)(1) ("…each NPDES permit shall include…[t]echnology-based effluent limitations based on: effluent limitations and standards published under section 301 of the Act") and (d)(1) (same for water quality standards and state requirements). NPDES regulations similarly identify the "POTW" as the entity subject to regulation. *See* 40 C.F.R. § 122.21(a), (requiring "new and existing POTWs" to submit information required in 122.21(j)," which in turn requires "all POTWs," among others, to provide permit application information).

A municipal satellite collection system is part of a POTW under applicable law. The CWA and its implementing regulations broadly define "POTW" to include not only wastewater treatment plants but also the sewer systems and associated equipment that collect wastewater and convey it to the plants. Under NPDES regulations at 40 C.F.R. §§ 122.2 and 403.3(q), the term "Publicly Owned Treatment Works" or "POTW" means "a treatment works as defined by section 212 of the Act, which is owned by a State or municipality (as defined by section 502(4) of the Act)." Under section 212 of the Act,

> "(2)(A) The term 'treatment works' means any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid

> nature to implement section 1281 of this title, or necessary to recycle or reuse water at the most economical cost over the estimated life of the works, including intercepting sewers, outfall sewers, *sewage collection systems* [emphasis added], pumping, power, and other equipment, and their appurtenances; extensions, improvements, remodeling, additions, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities; and any works, including site acquisition of the land that will be an integral part of the treatment process (including land used for the storage of treated wastewater in land treatment systems prior to land application) or is used for ultimate disposal of residues resulting from such treatment.
>
> (B) In addition to the definition contained in subparagraph (A) of this paragraph, 'treatment works' means any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste, including storm water runoff, or industrial waste, including waste in combined storm water and *sanitary sewer systems* [emphasis added]. Any application for construction grants which includes wholly or in part such methods or systems shall, in accordance with guidelines published by the Administrator pursuant to subparagraph (C) of this paragraph, contain adequate data and analysis demonstrating such proposal to be, over the life of such works, the most cost efficient alternative to comply with sections 1311 or 1312 of this title, or the requirements of section 1281 of this title."

Under the NPDES program regulations, this definition has been interpreted as follows:

> "The term *Publicly Owned Treatment Works* or *POTW* [emphasis in original]…includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in section 502(4) of the Act, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works."

See 40 C.F.R. § 122.2, cross-referencing 403.3(q).

The statutory and regulatory definitions plainly encompass both the POTW treatment plant and municipal satellite collection systems. Municipal satellite collection systems are part of a POTW by definition (*i.e.*, they are "sewage collection systems" under section 212(A) and "sanitary sewer systems" under section 212(B)). They are also conveyances that send wastewater to a POTW treatment plant for treatment under 40 C.F.R. 403.3(q)). The preamble to the rule that created the regulatory definition of POTW supports the reading that the treatment plant comprises only a portion of the POTW. *See* 44 Fed. Reg. 62260, 62261 (Oct. 29, 1979).[7]

[7] "A new provision…defining the term 'POTW Treatment Plant' has been added to avoid an ambiguity that now exists whenever a reference is made to a POTW (publicly owned treatment works). …[T]he existing regulation defines a POTW to include both the treatment plant and the sewer pipes and other conveyances leading to it. As a result, it is unclear whether a particular reference is to the pipes, the treatment plant, or both. The term "POTW

Consistent with EPA Region 1's interpretation, courts have similarly taken a broad reading of the terms treatment works and POTW.[8]

(2) If the latter, how far up the collection system does NPDES jurisdiction reach, i.e., where does the "collection system" end and the "user" begin?

NPDES jurisdiction extends beyond the treatment plant to the outer boundary of the municipally-owned sewage collection systems, which are defined as sewers whose purpose is to be a common carrier of wastewater for others to a POTW treatment plant for treatment, as explained below.

As discussed in response to Question 1 above, the term "treatment works" is defined to include "sewage collection systems." CWA § 212. In order to define the extent of the sewage collection system for purposes of co-permittee regulation—*i.e.*, to identify the boundary between the portions of the collection system that are subject to NPDES requirements and those that are not—Region 1 is relying on EPA's regulatory interpretation of the term "sewage collection system." In relevant part, EPA regulations define "sewage collection system" at 40 C.F.R. § 35.905 as:

> ".... each, and all, of the common lateral sewers, within a publicly owned treatment system, which are primarily installed to receive waste waters directly from facilities which convey waste water from individual structures or from private property and which include service connection "Y" fittings designed for connection with those facilities. The facilities which convey waste water from individual structures, from private property to the public lateral sewer, or its equivalent, are specifically excluded from the definition…."

Put otherwise, a municipal satellite collection system is subject to NPDES jurisdiction under the Region's approach insofar as its purpose is to be a common carrier of wastewater for others to a POTW treatment plant for treatment. The use of this primary purpose test (i.e., common sewer installed as a recipient and carrier waste water from others) allows Region 1 to draw a principled, predictable and readily ascertainable boundary between the POTW's collection system and user. This test would exclude, for example, branch drainpipes that collect and transport wastewater from fixtures in a commercial building or public school to the common lateral sewer. This type

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treatment plant" will be used to designate that portion of the municipal system which is actually designed to provide treatment to the wastes received by the municipal system."

[8] *See, e.g., United States v. Borowski, 977 F.2d 27, 30 n.5* (1st Cir. 1992) ("We read this language [POTW definition] to refer to such sewers, pipes and other conveyances that are publicly owned. Here, for example, the City of Burlington's sewer is included in the definition because it conveys waste water to the Massachusetts Water Resource Authority's treatment works."); *Shanty Town Assoc. v. Envtl. Prot. Agency, 843 F.2d 782, 785* (4th Cir. 1988) ("As defined in the statute, a 'treatment work' need not be a building or facility, but can be any device, system, or other method for treating, recycling, reclaiming, preventing, or reducing liquid municipal sewage and industrial waste, including storm water runoff.") (citation omitted); *Comm. for Consideration Jones Fall Sewage System v. Train*, 375 F. Supp. 1148, 1150-51 (D. Md. 1974) (holding that NPDES wastewater discharge permit coverage for a wastewater treatment plant also encompasses the associated sanitary sewer system and pump stations under § 1292 definition of "treatment work").

of infrastructure would not be considered part of the collection system, because it is not designed to be a common recipient and carrier of wastewaters from other users. Rather, it is designed to transport its users' wastewater to such a common collection system at a point further down the sanitary sewer system.

EPA's reliance on the definition of "sewage collection system" from outside the NPDES regulations for interpretative guidance is reasonable as the construction grants regulations at 40 C.F.R. Part 35, subpart E pertain to grants for POTWs, the entity that is the subject of this NPDES policy. Additionally, the term "sewage collection systems" expressly appears in the definition of treatment works under section 212 of the Act as noted above. Finally, this approach is also consistent with EPA's interpretation in other contexts, such as the SSO listening session notice, published in the Federal Register on June 1, 2010, which describes wastewater collection systems as those that "collect domestic sewage and other wastewater from homes and other buildings and convey it to wastewater sewage treatment plants for proper treatment and disposal." *See* "Municipal Sanitary Sewer Collection Systems, Municipal Satellite Collection Systems, Sanitary Sewer Overflows, and Peak Wet Weather Discharges From Publicly Owned Treatment Works Treatment Plants Serving Separate Sanitary Sewer Collection Systems," 75 Fed. Reg. 30395.[9]

(3) Do municipal satellite collection systems "discharge [] a pollutant" within the meaning of the statute and regulations?

Yes, because they are a part of the POTW, municipal satellite collection systems discharge pollutants to waters of the United States through one or more outfalls (point sources).

The "discharge of a pollutant," triggers the need for a facility to obtain an NPDES permit. A POTW "discharges [ ] pollutant[s]" if it adds pollutants from a point source to waters of the U.S. (See 40 C.F.R. § 122.2, section (a) of the definition of "discharge of a pollutant.") As explained above, municipal satellite collection systems are part of the POTW. The entire POTW is the entity that discharges pollutants to waters of the U.S. through point source outfalls typically located at the treatment plant but also occasionally through other outfalls within the overall system. The fact that a collection system may be located in the upstream portions of the POTW and not necessarily near the ultimate discharge point at the treatment plant is not material to the question of whether it "discharges" a pollutant and consequently may be subject to conditions of an NPDES permit issued for discharges from the POTW. [10]

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[9] That EPA has in the past looked for guidance from Part 35 when construing the NPDES permitting program, for instance, in the context of storm water permitting, provides further support to the Region that its practice in this regard is sound. *See, e.g.*, "National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges," 55 Fed. Reg. 47990, 47955 (looking to the definition of "storm sewer" at 40 C.F.R. § 35.2005(b)(47) when defining "storm water" under the NDPES program).

[10] This position differs from that taken by the Region in the *Upper Blackstone* litigation. There, the Region argued that the treatment plant was the sole discharging entity for regulatory purposes. The Region has revised this view upon further consideration of the statute, regulations and case law and determined that the POTW as a whole is the discharging entity.

"Discharge of a pollutant" at 40 C.F.R. § 122.2 is also defined to include "… discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person *which do not lead to a treatment works.*"(emphasis added). Some municipal collection systems have argued that this sentence means that only municipal discharges that do not lead to a "treatment plant" fall within the scope of "discharge of a pollutant." They further argue that because discharges through satellite collection systems do lead to a treatment plant, such systems do not "discharge [] pollutant[s]" and therefore are not subject to the NPDES permit requirements. This argument is flawed in that it incorrectly equates "treatment works," the term used in the definition above, with "treatment plant." To interpret "treatment works" as it appears in the regulatory definition of "discharge of a pollutant" as consisting of only the POTW treatment plant would be inconsistent with the definition of "treatment works" at 40 C.F.R. § 403.3(q), which expressly includes the collection system. *See also* § 403.3(r) (defining "POTW Treatment Plant" as "*that portion* [emphasis added] of the POTW which is designed to provide treatment (including recycling and reclamation) of municipal sewage and industrial waste").

(4) Are municipal satellite collection systems "indirect dischargers" and thus excluded from NPDES permitting requirements?

No, municipal satellite collection systems are part of the POTW, not "indirect dischargers" to the POTW.

Section 307(b) of the Act requires EPA to establish regulatory pretreatment requirements to prevent the "introduction of pollutants into treatment works" that interfere, pass through or are otherwise incompatible with such works. Section 307 is implemented through the General Pretreatment Regulations for Existing and New Sources of Pollution (40 C.F.R. Part 403) and categorical pretreatment standards (40 C.F.R. Parts 405-471). Section 403.3(i) defines "indirect discharger" as "any non-domestic" source that introduces pollutants into a POTW and is regulated under pretreatment standards pursuant to CWA § 307(b)-(d). The source of an indirect discharge is termed an "industrial user." *Id*. at § 403.3(j). Under regulations governing the NPDES permitting program, the term "indirect discharger" is defined as "a non-domestic discharger introducing 'pollutants' to a 'publicly owned treatment works.'" 40 C.F.R. § 122.2. Indirect dischargers are excluded from NPDES permit requirements by the indirect discharger rule at 40 C.F.R. § 122.3(c), which provides, "The following discharges do not require an NPDES permit: . . . The introduction of sewage, industrial wastes or other pollutants into publicly owned treatment works by indirect dischargers."

Municipal satellite collection satellite systems are not indirect dischargers as that term is defined under part 122 or 403 regulations. Unlike indirect dischargers, municipal satellite collection systems are not "introducing pollutants" to POTWs under 40 C.F.R. § 122.2; they are, instead, part of the POTW by definition. Similarly, they are not a non-domestic *source* that introduces pollutants into a POTW within the meaning of § 403.3(j), but as part of the POTW collect and convey municipal sewage from industrial, commercial and domestic users of the POTW.

The Region's determination that municipal satellite collection systems are not indirect dischargers is, additionally, consistent with the regulatory history of the term indirect discharger.

The 1979 revision of the part 122 regulations defined "indirect discharger" as "a non-municipal, non-domestic discharger introducing pollutants to a publicly owned treatment works, which introduction does not constitute a 'discharge of pollutants'…" *See* National Pollutant Discharge Elimination System, 44 Fed. Reg. 32854, 32901 (June 7, 1979). The term "non-municipal" was removed in the Consolidated Permit Regulations, 45 Fed. Reg. 33290, 33421 (May 19, 1980) (defining "indirect discharger" as "a nondomestic discharger…"). Although the change was not explained in detail, the substantive intent behind this provision remained the same. EPA characterized the revision as "minor wording changes." 45 Fed. Reg. at 33346 (Table VII: "Relationship of June 7[, 1979] Part 122 to Today's Regulations"). The central point again is that under any past or present regulatory incarnation, municipal satellite collection systems, as POTWs, are not within the definition of "indirect discharger," which is limited to dischargers that introduce pollutants to POTWs.

The position that municipal satellite collection systems are part of, rather than discharge to, the POTW also is consistent with EPA guidance. EPA's 1994 Multijurisdictional Pretreatment Programs Guidance Manual, (EPA 833-B94-005) (June 1994), at p. 19, asserts that EPA has the authority to require municipal satellite collection systems to develop pretreatment programs by virtue of their being part of the POTW.

(5) How is the Region's rationale consistent with the references to "municipality" in the regulatory definition of POTW found at 40 C.F.R. § 403.3(q), and the definition's statement that "[t]he term also means the municipality….which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works?"

There is no inconsistency between the Region's view that municipally-owned satellite collection systems are part of a POTW, and the references to municipality in 40 C.F.R. § 403.3(q), including the final sentence of the regulatory definition of POTW in the pretreatment regulations.

The Region's co-permitting rationale is consistent with the first part of the pretreatment program's regulatory definition of POTW, because the Region is only asserting NPDES jurisdiction over satellite collection systems that are owned by a "State or municipality (as defined by section 502(4) of the Act)." The term "municipality" as defined in CWA § 502(4) "means a city, town, borough, county, parish, district, association, or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes…" Thus, in order to qualify under this definition, a wastewater collection system need only be "owned by a State or municipality." There is no requirement that the constituent components of a regionally integrated POTW, *i.e.*, the collection system and regional centralized POTW treatment plant, be owned by the same State or municipal entity.

Furthermore, there is no inconsistency between the Region's view that a satellite collection system is part of a POTW, and the final sentence of the regulatory definition of POTW in the pretreatment regulations. As noted above, the sentence provides that "POTW" may "also" mean a municipality which has jurisdiction over indirect discharges to and discharges from the treatment works. This is not a limitation because of the use of the word "also" (contrast this with the "only if" language in the preceding sentence of the regulatory definition).

(6) How does the Region's rationale comport with the permit application and signatory requirements under NPDES regulations?

EPA's authority to require municipal satellite collection systems to separately comply with the permit application requirements, or to provide waivers from these requirements where appropriate, is consistent with NPDES regulations, which provide that all POTWs must submit permit application information set forth in 40 C.F.R. § 122.21(j) unless otherwise directed, and municipal satellite collection systems are part of the POTW.

EPA has the authority to require municipal satellite collection systems to submit permit applications. These entities are operators of parts of the POTW. NPDES regulations characterize the operator "of the POTW" (which by definition includes the sewage collection system) as opposed to the operator "of the POTW treatment plant" as an appropriate applicant. *Id.* § 122.21(a), (requiring applicants for "new and existing POTWs" to submit information required in 122.21(j)," which in turn requires "all POTWs," among others, to provide permit application information). This reading of the regulation is in keeping with the statutory text, which subjects the POTW writ large to the secondary treatment and water quality-based requirements. *See* CWA § 301(b)(1)(B), (C). In fact, the NPDES permit application for POTWs solicits information concerning portions of the POTW beyond the treatment plant itself, including the collection system used by the treatment works. *See* 40 C.F.R. 122.21(j)(1).

Notwithstanding that EPA could require applications for all the municipal satellite collection systems, requiring such applications may result in duplicative or immaterial information. The Regional Administrator ("RA") may waive any requirement of this paragraph if he or she has access to substantially identical information. 40 C.F.R. § 122.21(j). *See generally*, 64 Fed. Reg. 42440 (August 4, 1999). The RA may also waive any application requirement that is not of material concern for a specific permit. Region 1 believes that it will typically receive information sufficient for NPDES permitting purposes from the POTW treatment plant operator's application.

In most cases, EPA Region 1 believes that having a single permit application from the POTW treatment plant operator will be more efficient in carrying out the regulation's intent than multiple applications from the satellite systems. (The treatment plant operator would of course be required to coordinate as necessary with the constituent components of the POTW to ensure that the information provided to EPA is accurate and complete). EPA Region 1 therefore intends to issue waivers to exempt municipal satellite collection systems from permit application and signatory requirements in accordance with 40 C.F.R. § 122.21(j). To the extent the Region requires additional information, it intends to use its information collection authority under CWA § 308.

IV. Basis for the Specific Conditions to which the Municipal Satellite Collection Systems are Subject as Co-permittees

The legal authority for extending NPDES conditions to all portions of the municipally-owned treatment works to ensure proper operation and maintenance and to reduce the quantity of extraneous flow into the POTW is Section 402(a) of the CWA. This section of the Act authorizes EPA to issue a permit for the "discharge of pollutants" and to prescribe permit conditions as necessary to carry out the provisions of the CWA, including Section 301 of the Act. Among other things, Section 301 requires POTWs to meet performance-based requirements based on secondary treatment technology, as well as any more stringent requirements of State law or regulation, including water quality standards. *See* CWA § 301(b)(1)(B),(C).

The co-permittee requirements are required to assure continued achievement of secondary treatment requirements and water quality standards in accordance with sections 301 and 402 of the Act and to prevent unauthorized discharges of sewage from collection systems. With respect to secondary treatment, the inclusion of the satellite systems as co-permittees is necessary because high levels of I/I dilute the strength of influent wastewater and increase the hydraulic load on treatment plants, which can reduce treatment efficiency (*e.g.*, result in violations of technology-based percent removal limitations for BOD and TSS due to less concentrated influent, or violation of other technology effluent limitations due to reduction in treatment efficiency), lead to bypassing a portion of the treatment process, or in extreme situations make biological treatment facilities inoperable (*e.g.*, wash out the biological organisms that treat the waste).

As to water quality standards, the addition of the satellite systems as co-permittees is necessary to ensure collection system operation and maintenance, which will reduce extraneous flow entering the system and free up available capacity. This will facilitate compliance with water quality-based effluent limitations—made more difficult by reductions in treatment efficiency and also reduce water quality standard violations that result from the occurrence of SSOs. *See Exhibits B* (Municipal satellite collection systems with SSOs) and *C* (Analysis of extraneous flow trends for representative systems). SSOs that reach waters of the U.S. are discharges in violation of section 301(a) of the CWA to the extent not authorized by an NPDES permit.

Subjecting portions of an NPDES-regulated entity upstream of the ultimate discharge point is consistent with EPA's interpretation of the CWA in other contexts. For example, it is well established that EPA has the ability to apply discharge limitations and monitoring requirements to internal process discharges, rather than to outfalls, on the grounds that compliance with permit limitations "may well involve controls applied at points other than the ultimate point of discharge." *See Decision of the General Counsel No. 27 (In re Inland Steel Company)*, August 4, 1975 ("Limitations upon internal process discharges are proper, if such discharges would ultimately be discharged into waters of the United States, and if such limitations are necessary to carry out the principal regulatory provisions of the Act."). In the case of regionally integrated POTWs, placing conditions on satellite collection systems—though located farther up the system than the point of discharge—is a logical implication of the regulations and serves to effectuate the statute.

Without imposing conditions on the satellite communities, standard permit conditions applicable to all NPDES permits by regulation cannot be given full effect. To illustrate, there is no dispute

that the operator of the POTW treatment plant and outfall is discharging pollutants within the meaning the CWA and, accordingly, is subject to the NPDES permit program. NPDES permitting regulations require standard conditions that "apply to all NPDES permits," pursuant to 40 C.F.R. § 122.41, including a duty to mitigate and to properly operate and maintain "all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit." *Id.* at § 122.41(d), (e). EPA regulations also require additional conditions applicable to specified categories of NPDES permit, including "Publicly owned treatment works." *See id.* at § 122.42(b). A municipal satellite collection system, as demonstrated above, falls within the regulatory definition of a POTW. In light of EPA's authority to require appropriate operation and maintenance of collection systems necessary to achieve compliance with an NPDES permit, and because the operator of the POTW treatment plant may not own or operate a significant portion of the wider treatment works (*i.e.*, the collection systems that send flow to the POTW treatment plant), it is appropriate, and in some cases necessary, to extend pertinent, mandated standard conditions to all portions of the POTW, which is subject to regulation in its entirety. The alternative of allowing state and local jurisdictional boundaries to place significant portions of the POTW beyond the reach of the NPDES permitting program would not only be inconsistent with the broad statutory and regulatory definition of the term POTW but would impede Region 1 from carrying out the objectives of the CWA. It would also, illogically, preclude the Region from imposing on POTWs standard conditions EPA has by regulation mandated for those entities.

Other Considerations Informing EPA Region 1's Decision to Use a Co-permittee Permitting Structure for Regionally Integrated POTWs

In addition to consulting the relevant statutes, regulations, and preambles, Region 1 also considered other EPA guidance in coming to its determination to employ a co-permittee structure for regionally integrated POTWs. EPA's 1994 Multijurisdictional Pretreatment Programs Guidance Manual, p. 19, asserts that EPA has the authority to include municipal satellite collection systems as co-permittees by virtue of their being part of the POTW:

> If the contributing jurisdiction owns or operates the collection system within its boundaries, then it is a co-owner or operator of the POTW. As such, it can be included on the POTW's NPDES permit and be required to develop a pretreatment program. Contributing jurisdictions should be made co-permittees where circumstances or experience indicate that it is necessary to ensure adequate pretreatment program implementation.

The same logic that led EPA to conclude it had authority to require municipal satellite collection systems to develop a pretreatment program pursuant to an NPDES permit supports EPA Region 1's decision to impose permit conditions on such facilities to undertake proper O & M and to reduce inflow and infiltration.

EPA Region 1 also took notice of federal listening session materials on the June 2010 proposed SSO rule and associated model permits and fact sheet. The position articulated by EPA in these

model documents—specifically the application of standard NPDES conditions to municipal satellite collection systems—generally conform to Region 1's co-permitting approach.

Finally, in addition to federal requirements, EPA Region 1 considered the co-permittee approach in light of state regulations and policy pertaining to wastewater treatment works. The Region found its approach to be consistent with such requirements. Under Massachusetts law, "Any person operating treatment works shall maintain the facilities in a manner that will ensure proper operation of the facilities or any part thereof," where "treatment works" is defined as "any and all devices, processes and properties, real or personal, used in the collection, pumping, transmission, storage, treatment, disposal, recycling, reclamation or reuse of waterborne pollutants, but not including any works receiving a hazardous waste from off the site of the works for the purpose of treatment, storage or disposal, or industrial wastewater holding tanks regulated under 314 CMR 18.00" *See* 314 CMR 12.00 ("Operation and Maintenance and Pretreatment Standards for Wastewater Treatment Works and Indirect Dischargers"). MassDEP has also prioritized this area, issuing detailed operation and maintenance guidelines entitled "Optimizing Operation, Maintenance and Rehabilitation of Sanitary Sewer Collection Systems."

Exhibit A

Name	Issue Date
Massachusetts Water Resources Authority – Clinton (NPDES Permit No. MA0100404)	September 27, 2000
City of Brockton (NPDES Permit No. MA0101010)	May 11, 2005
City of Marlborough (NPDES Permit No. MA0100480)	May 26, 2005
Westborough Wastewater Treatment Plant (NPDES Permit No. MA0100412)	May 20, 2005
Lowell Regional Wastewater Utilities (NPDES Permit No. MA0100633)	September 1, 2005
Town of Webster Sewer Department (NPDES Permit No. MA0100439)	March 24, 2006
Town of South Hadley, Board of Selectmen (NPDES Permit No. MA0100455)	June 12, 2006
City of Leominster (NPDES Permit No. MA0100617)	September 28, 2006
Hoosac Water Quality District (NPDES Permit No. MA0100510)	September 28, 2006
Board of Public Works, North Attleborough (NPDES Permit No. MA0101036)	January 4, 2007
Town of Sunapee (NPDES Permit No. 0100544)	February 21, 2007
Lynn Water and Sewer Commission (NPDES Permit No. MA0100552)	March 3, 2007
City of Concord (NPDES Permit No. NH0100331)	June 29, 2007
City of Keene (NPDES Permit No. NH0100790)	August 24, 2007
Town of Hampton (NPDES No. NH0100625)	August 28, 2007
Town of Merrimack, NH (NPDES No. NH0100161)	September 25, 2007
City of Haverhill (NPDES Permit No. MA0101621)	December 5, 2007
Greater Lawrence Sanitary District (NPDES Permit No. MA0100447)	August 11, 2005

City of Pittsfield, Department of Public Works (NPDES No. MA0101681)	August 22, 2008
City of Manchester (NPDES No. NH0100447)	September 25, 2008
City of New Bedford (NPDES Permit No. MA0100781)	September 28, 2008
Winnipesaukee River Basin Program Wastewater Treatment Plant (NPDES Permit No. NH0100960)	June 19, 2009
City of Westfield (NPDES Permit No. MA0101800)	September 30, 2009
Hull Permanent Sewer Commission (NPDES Permit No. MA0101231)	September 1, 2009
Gardner Department of Public Works (NPDES Permit No. MA0100994)	September 30, 2009

Exhibit B

I/I Flow Analysis for Sample Regional Publicly Owned Treatment Works

I. Representative POTWS

The **South Essex Sewer District (SESD)** is a regional POTW with a treatment plant in Salem, Massachusetts. The SESD serves a total population of 174,931 in six communities: Beverly, Danvers, Marblehead, Middleton, Peabody and Salem. The **Charles River Pollution Control District (CRPCD)** is a regional POTW with a treatment plant in Medway, Massachusetts. The CRPCD serves a total population of approximately 28,000 in four communities: Bellingham, Franklin, Medway and Millis. Both of these facilities have been operating since 2001 under permits that place requirements on the treatment plant to implement I/I reduction programs with the satellite collection systems, in contrast to Region 1's current practice of including the satellite collection systems as co-permittees.

II. Comparison of flows to standards for nonexcessive infiltration and I/I

Flow data from the facilities' discharge monitoring reports (DMRs) are shown in comparison to the EPA standard for nonexcessive infiltration/inflow (I/I) of 275 gpcd wet weather flow and the EPA standard for nonexcessive infiltration of 120 gallons per capita per day (gpcd) dry weather flow; the standards are multiplied by population served for comparison with total flow from the facility. See *I/I Analysis and Project Certification*, EPA Ecol. Pub. 97-03 (1985); 40 CFR 35.2005(b)(28) and (29).

Figures 1 and 2 show the Daily Maximum Flows (the highest flow recorded in a particular month) for the CRPCD and SESD, respectively, along with monthly precipitation data from nearby weather stations. Both facilities experience wet weather flows far exceeding the standard for nonexcessive I/I, particularly in wet months, indicating that these facilities are receiving high levels of inflow and wet weather infiltration.

Figure 1. CRPCD Daily Maximum Flow Compared to Nonexcessive I/I Standard

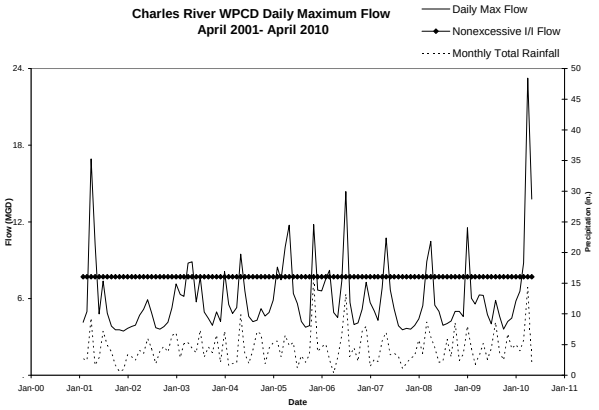
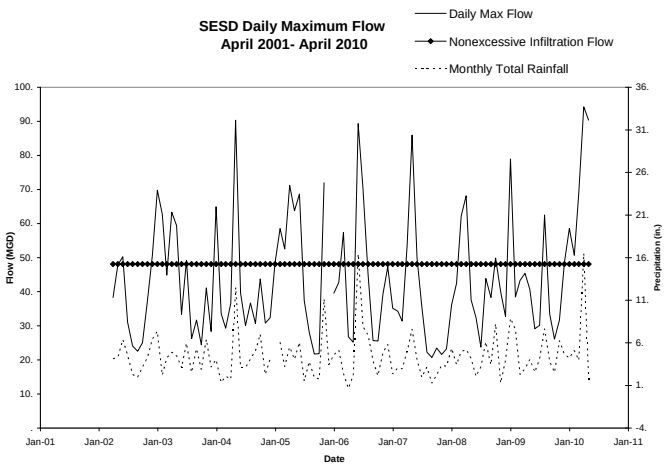


Figure 2. SESD Daily Maximum Flow Compared to Nonexcessive I/I Standard



Figures 3 and 4 shows the Average Monthly Flows for the CRPCD and SESD, which exceed the nonexcessive infiltration standard for all but the driest months. This indicates that these systems experience high levels of groundwater infiltration into the system even during dry weather.

Figure 3. CRPCD Monthly Average Flow Compared to Nonexcessive Infiltration Standard

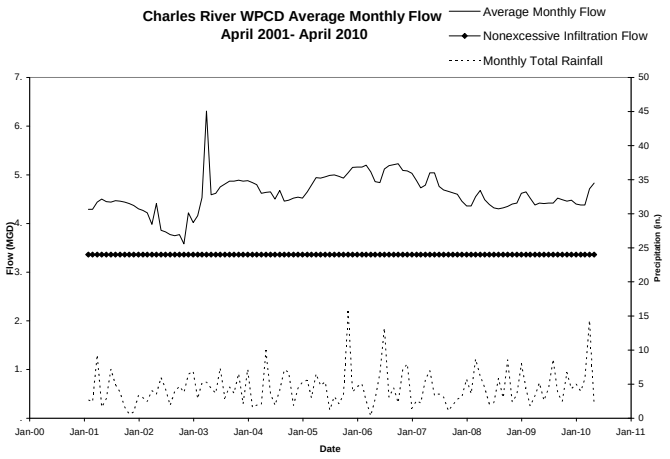
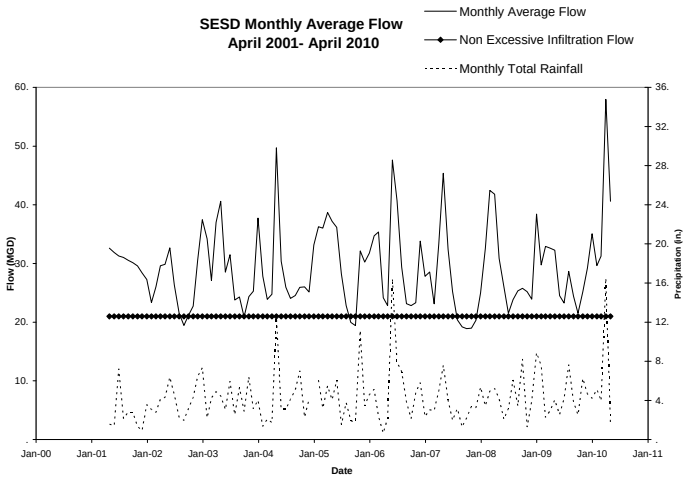


Figure 4. SESD Monthly Average Flow Compared to Nonexcessive Infiltration Standard



II. Flow Trends

Figures 5 and 6 show the trend in Maximum Daily Flows over the period during which these regional facilities have been responsible for implementing cooperative I/I reduction programs with the satellite collection systems. The Maximum Daily Flow reflects the highest wet weather flow for each month. The trend over this time period has been of increasing Maximum Daily Flow, indicating that I/I has not been reduced in either system despite the permit requirements.

Figure 5. CRPCD Daily Maximum Flow Trend

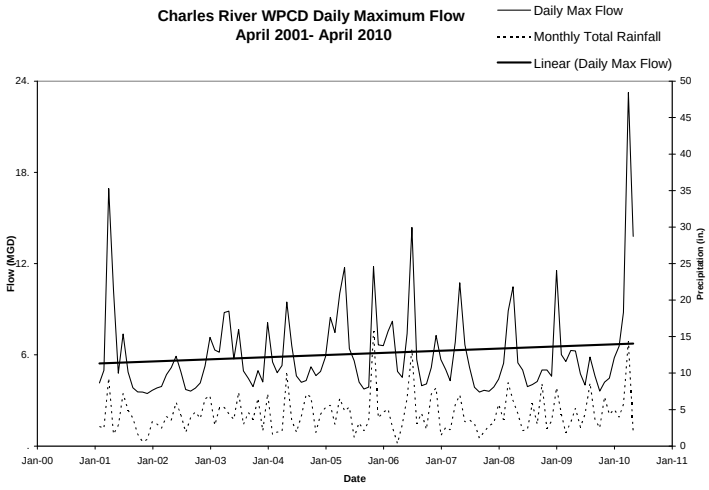
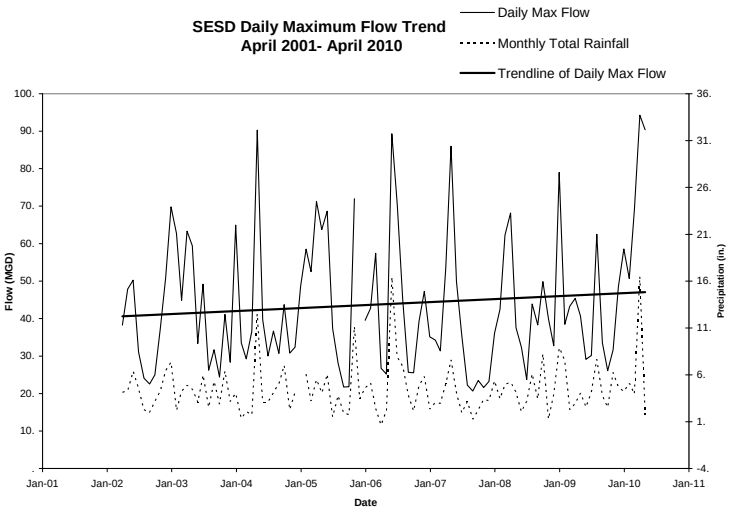


Figure 6. SESD Daily Maximum Flow Trend



III. Violations Associated with Wet Weather Flows

Both the CRPCD and SESD have experienced permit violations that appear to be related to I/I, based on their occurrence during wet weather months when excessive I/I standards are exceeded. Figure 7 shows violations of CRPCD's effluent limits for CBOD (concentration) and TSS (concentration and percent removal). Twelve of the sixteen violations occurred during months when daily maximum flows exceeded the EPA standard.

Figure 7. CRPCD CBOD and TSS Effluent Limit Violations

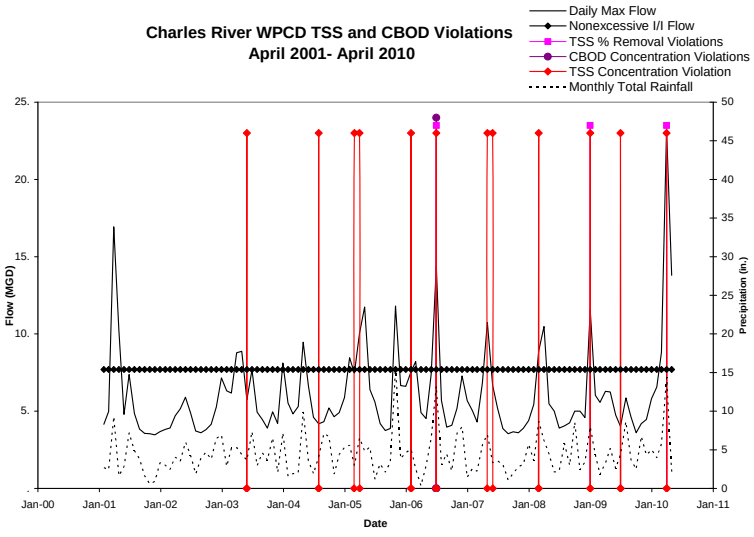
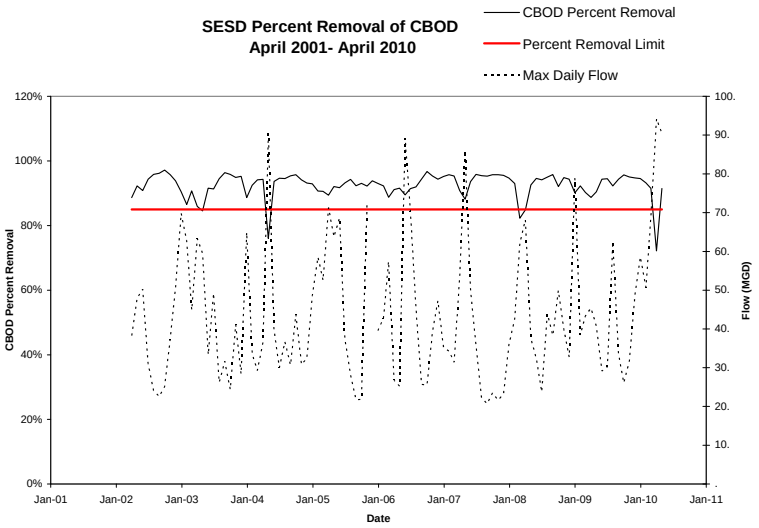


Figure 8 shows SESD's results for removal of CBOD, in percentage, as compared to maximum daily flow. SESD had three permit violations where CBOD removal fell below 85%, all during months with high Maximum Daily Flows.

Figure 8. SESD CBOD Percent Removal



In addition, both of these regional POTWs have experienced SSOs within the municipal satellite collection systems. In the SESD system, Beverly, Danvers, Marblehead and Peabody have reported SSOs between 2006 and 2008, based on data provided by MassDEP. In the CRPCD system, both Franklin and Bellingham have reported SSOs between 2006 and 2009.

Exhibit C

List of municipal satellite collection systems that have had SSOs

Exhibit D

Form of Regional Administrator's waiver of permit application requirements for municipal satellite collection systems

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

Re: Waiver of Permit Application and Signatory Requirements for [Municipal Satellite Sewage Collection System]

Dear _____:

Under NPDES regulations, all POTWs must submit permit application information set forth in 40 C.F.R. § 122.21(j) unless otherwise directed. Where the Region has "access to substantially identical information," the Regional Administrator may waive permit application requirements for new and existing POTWs. *Id.* Pursuant to my authority under this regulation, I am waiving NPDES permit application and signatory requirements applicable to the above-named municipal satellite collection systems.

Although EPA has the authority to require municipal satellite collection systems to submit individual permit applications, in this case I find that requiring a single permit application executed by the regional POTW treatment plant owner/operator will deliver "substantially identical information," and will be more efficient, than requiring separate applications from each municipal satellite collection system owner/operator. Municipal satellite collection system owners/operators are expected to consult and coordinate with the regional POTW treatment plant operators to ensure that any information provided to EPA about their respective entities is accurate and complete. In the event that EPA requires additional information, it may use its information collection authority under CWA § 308. 33 U.S.C. § 1318.

This notice reflects my determination based on the specific facts and circumstances in this case. It is not intended to bind the agency in future determinations where a separate permit for municipal satellites would not be duplicative or immaterial.

If you have any questions or would like to discuss this decision, please contact [EPA Contact] at [Contact Info].

Sincerely,

Regional Administrator