UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

FACT SHEET

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

NPDES PERMIT NUMBER: MA0100633

PUBLIC NOTICE START AND END DATES: June 7, 2019 – July 8, 2019

NAME AND MAILING ADDRESS OF APPLICANT:

Lowell Regional Wastewater Utility
451 1st Street Boulevard (Route 110)
Lowell, MA 01850

The municipalities of Chelmsford, Dracut, Tewksbury and Tyngsborough, Massachusetts are Co-permittees for specific activities required in Sections I.B., I.C., and I.D. of the Draft Permit and described in Section 5.5 of this Fact Sheet. The responsible municipal departments are:

Town of Chelmsford
Department of Public Works
Sewer Division
9 Alpha Road
Chelmsford, MA 01824

Town of Dracut
Sewer Department
62 Arlington Road
Dracut, MA 01826

Town of Tewksbury
Department of Public Works
Water and Sewer Division
1009 Main Street
Tewksbury, MA 01876

Town of Tyngsborough
Town Hall
25 Bryants Lane
Tyngsborough, MA 01879

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Lowell Regional Wastewater Utility
451 1st Street Boulevard (Route 110)
Lowell, MA 01850
and from nine Combined Sewer Overflow Outfalls

RECEIVING WATER AND CLASSIFICATION:

Merrimack Watershed – USGS Code: 01070002
Merrimack River (MA84A-01, 02 and 03): Class B – Treated Water Supply, Warm Water Fishery, CSO
Beaver Brook (MA84A-11): Class B – Cold Water Fishery
Concord River (MA82A-09): Class B – Warm Water Fishery, CSO

TABLE OF CONTENTS

1 Proposed Action 4
2 Statutory and Regulatory Authority 4
2.1 Technology-Based Requirements 4
2.2 Water Quality-Based Requirements 5
2.2.1 Water Quality Standards 5
2.2.2 Anti-degradation 5
2.2.3 Assessment and Listing of Waters and Total Maximum Daily Loads 6
2.2.4 Reasonable Potential 6
2.2.5 State Certification 7
2.3 Effluent Flow Requirements 8
2.4 Monitoring and Reporting Requirements 9
2.4.1 Monitoring Requirements 9
2.4.2 Reporting Requirements 10
2.5 Anti-backsliding 11
3 Description of Facility and Discharge 11
3.1 Location and Type of Facility 11
3.1.1 Treatment Process Description 12
3.1.2 Collection System Description 12
4 Description of Receiving Water and Dilution 13
4.1 Available Dilution 15
5 Proposed Effluent Limitations and Conditions 15
5.1 Effluent Limitations and Monitoring Requirements 16
5.1.1 Wastewater Effluent Flow 16
5.1.2 Carbonaceous Biochemical Oxygen Demand ($CBOD_5$) 16
5.1.3 Total Suspended Solids (TSS) 17
5.1.4 Eighty-Five Percent (85%) $CBOD_5$ and TSS Removal Requirement 18
5.1.5 pH 18
5.1.6 Bacteria 18
5.1.7 Dissolved Oxygen 19
5.1.8 Total Residual Chlorine 19
5.1.9 Ammonia 20
5.1.10 Nutrients 21
5.1.11 Metals 27
5.1.12 Whole Effluent Toxicity 29
5.2 Industrial Pretreatment Program 30
5.3 Sludge Conditions 31
5.4 Infiltration/Inflow (I/I) 31
5.5 Operation and Maintenance of the Sewer System 31
5.6 Combined Sewer Overflows 32
5.7 Standard Conditions 34
6 Federal Permitting Requirements 34
6.1 Endangered Species Act 34
6.2 Essential Fish Habitat 36
7 Public Comments, Hearing Requests and Permit Appeals 37
8 EPA and MassDEP Contacts 38

TABLE OF TABLES

Table 1: Receiving water segments and impairment causes *from Massachusetts Year 2014 Integrated List of Waters* 14

Table 2: Ammonia Reasonable Potential Analysis and Limit Derivation 21

Table 3. Instream Total Phosphorus Data, µg/L 24

Table 4: Supplemental Upstream Metals Data 27

TABLE OF FIGURES

Figure 1: Lowell Regional Wastewater Utility Map 39

Figure 2: Flow diagram 40

APPENDICES

Appendix A – Effluent and Ambient Data

Appendix B – Metals Reasonable Potential and Limits Calculations

Appendix C – Statistical Approach to Characterizing the Effluent

Appendix D – EPA Region I NPDES Permitting Approach for Publicly Owned Treatment Works that Include Municipal Satellite Sewage Collection Systems

Appendix E – CSO Outfalls

1 Proposed Action

The above-named applicant (the "Permittee") has applied to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge from the Treatment Plant (the "Facility") into the designated receiving waters.

The permit currently in effect was issued on September 1, 2005 with an effective date of October 31, 2005 and expired on October 31, 2010 (the "2005 Permit"). The Permittee filed an application for permit reissuance with EPA dated May 25, 2010, as required by 40 Code of Federal Regulations (C.F.R.) § 122.6. Since the permit application was deemed timely and complete by EPA on November 10, 2010 the Facility's 2005 Permit has been administratively continued pursuant to 40 C.F.R. § 122.6 and § 122.21(d).

This NPDES Permit is issued jointly by EPA and MassDEP under federal and state law, respectively. As such, all the terms and conditions of the permit are, therefore, incorporated into and constitute a discharge permit issued by the Director of the Division of Watershed Management pursuant to M.G.L. Chap. 21, § 43.

2 Statutory and Regulatory Authority

Congress enacted the Clean Water Act (CWA), "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." *See* 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 §§ 303(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. *See* 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 C.F.R. §§ 122, 124, 125, and 136.

Section 301 of the CWA provides 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(b); 40 C.F.R. §§ 122, 125, and 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 BOD_5, TSS and pH. *See* 40 C.F.R. § 133.

Under § 301(b)(1) of the CWA, 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 C.F.R. § 125.3(a)(1).

2.2 Water Quality-Based Requirements

The CWA and federal regulations require that effluent limitations 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* § 301(b)(1)(C) of the CWA and 40 C.F.R. §§ 122.44(d)(1) and 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 C.F.R. § 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 C.F.R. § 131.12. The applicable State WQSs can be found in Title 314 of the Code of Massachusetts Regulations, Chapter 4 (314 CMR 4.00).

Receiving water requirements are established according to numerical and narrative standards in WQSs adopted under State law for each water body classification. 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 limits are necessary for a pollutant to meet narrative water quality criteria, the permitting authority must establish effluent limits in one of three ways: 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," on a "case-by-case basis" using CWA § 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or, in certain circumstances, based on an indicator parameter. *See* 40 C.F.R. § 122.44(d)(1)(vi)(A-C).

2.2.2 Anti-degradation

Federal regulations found at 40 C.F.R. § 131.12 require states to develop and adopt a statewide anti-degradation 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 anti-degradation policy ensures that high quality waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and support recreation in and on the water, are maintained 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 anti-degradation policy, entitled "Antidegradation Provisions", is found in the State's WQSs at 314 CMR 4.04. Massachusetts guidance for the implementation of this policy is in an associated document entitled "Implementation Procedure for the Anti-degradation Provisions of the State Water Quality Standards", dated October 21, 2009. According to the policy, no lowering of water quality is allowed, except in accordance with the anti-degradation 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 protect 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, the 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 of 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 is essentially a pollution budget designed to restore the health of an impaired water body. A TMDL typically identifies the source(s) of the pollutant from direct and indirect discharges, determines the maximum load of the pollutant that can be discharged to a specific water body while maintaining WQSs for designated uses, and allocates that load to the various pollutant sources, including point source discharges, subject to NPDES permits. *See* 40 C.F.R. § 130.7.

For impaired waters where a TMDL has been developed for a particular pollutant and the TMDL includes a waste load allocation for a NPDES permitted discharge, the effluent limit in the permit may not exceed the waste load allocation. *See* 40 C.F.R. § 122.44(d)(1)(vii)(B).

2.2.4 Reasonable Potential

Pursuant to 40 C.F.R. § 122.44(d)(1), NPDES permits must contain any requirements in addition to TBELs necessary to achieve water quality standards established under § 303 of the CWA. In

addition, limitations "must control any pollutant or pollutant parameters (conventional, non-conventional, or toxic) which the Director 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". *See* 40 C.F.R. § 122.44(d)(1)(i). There is reasonable potential to cause or contribute to an excursion if the projected or actual in-stream concentration exceeds the applicable criterion. If the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to such an excursion, the permit must contain WQBELs for the pollutant. *See* 40 C.F.R. 122.44(d)(1)(iii).

In determining reasonable potential, 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 in the receiving water. EPA typically considers the statistical approach outlined in *Technical Support Document for Water Quality-based Toxics Control (TSD)*[1] to determine if the discharge causes, or has the reasonable potential to cause, or contribute to an excursion above any WQS. *See* 40 C.F.R. § 122.44(d). EPA's quantitative approach statistically projects effluent concentrations based on available effluent data, which are then compared to the applicable WQS.

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 or it is deemed that the state has waived its right to certify. Regulations governing state certification are set forth in 40 C.F.R. § 124.53 and § 124.55. EPA has requested permit certification by the State pursuant to 40 C.F.R. § 124.53 and expects that the Draft Permit will be certified.

If the State believes that any conditions more stringent than those contained in the Draft Permit are necessary to meet the requirements of either the CWA §§ 208(e), 301, 302, 303, 306 and 307 or the appropriate requirements of State law, the State should include such conditions and, in each case, cite the CWA or State law reference upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. The only exception to this is that the sludge conditions/requirements implementing § 405(d) of the CWA are not subject to the § 401 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 applicable procedures of 40 C.F.R. § 124.

In addition, the State should provide a statement of the extent to which any condition of the Draft Permit can be made less stringent without violating the requirements of State law. Since the State's certification is provided prior to 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.

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[1] March 1991, EPA/505/2-90-001

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." *See* 40 C.F.R. § 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 limits based upon water quality standards and state requirements are contained in 40 C.F.R. § 122.4 (d) and 40 C.F.R. § 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).

EPA may use design flow of wastewater effluent both to determine the necessity for effluent limitations in the permit that comply with the Act, and to calculate the limits themselves. EPA practice is to use design 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 wastewater effluent flow exceed the flow assumed in these calculations, the instream dilution would decrease and the calculated effluent limits may not be protective of WQSs. Further, pollutants that do not have the reasonable potential to exceed WQSs at the lower wastewater discharge flow may have reasonable potential at a higher flow due to the decreased dilution. To ensure that the assumptions underlying the Region's reasonable potential analyses and derivation of permit effluent limitations remain sound for the duration of the permit, the Region may ensure its "worst-case" wastewater effluent flow assumption through imposition of permit conditions for wastewater effluent flow. Thus, the wastewater effluent flow limit is a component of WQBELs because the WQBELs are premised on a maximum level of flow. In addition, the wastewater effluent flow limit is necessary to ensure that other pollutants remain at levels that do not have a reasonable potential to exceed WQSs.

Using a facility's design flow in the derivation of pollutant effluent limitations, including conditions to limit wastewater effluent flow, is consistent with, and anticipated by NPDES permit regulations. Regarding the calculation of effluent limitations for POTWs, 40 C.F.R. § 122.45(b)(1) provides, "permit effluent limitations…shall be calculated based on design flow." POTW permit applications are required to include the design flow of the treatment facility. *Id.* § 122.21(j)(1)(vi).

Similarly, EPA's reasonable potential regulations require EPA to consider "where appropriate, the dilution of the effluent in the receiving water," 40 C.F.R. § 122.44(d)(1)(ii), which is a function of *both* the wastewater effluent flow and receiving water flow. EPA guidance directs that this "reasonable potential" analysis be based on "worst-case" conditions. EPA accordingly is authorized to carry out its reasonable potential calculations by presuming that a plant is operating at its design flow when assessing reasonable potential.

The limitation on wastewater effluent flow is within EPA's authority to condition a permit in order to carry out the objectives of the Act. *See* CWA §§ 402(a)(2) and 301(b)(1)(C); 40 C.F.R.

§§ 122.4(a) and (d); 122.43 and 122.44(d). A condition on the discharge designed to protect EPA's WQBEL and reasonable potential calculations is encompassed by the references to "condition" and "limitations" in 402 and 301 and implementing regulations, as they are designed to assure compliance with applicable water quality regulations, including anti-degradation. 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 II.B.1 of this permit and 40 C.F.R. § 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. Thus, the permit's wastewater effluent flow limitation is necessary to ensure proper facility operation, which in turn is a requirement applicable to all NPDES permits. *See* 40 C.F.R. § 122.41.

EPA has also included the wastewater 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 non-compliance 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. 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 C.F.R. §§ 122.41(d) and (e).

2.4 Monitoring and Reporting Requirements

2.4.1 Monitoring Requirements

EPA has the authority in accordance with several statutory and regulatory requirements established pursuant to the CWA, 33 USC § 1251 et seq., the NPDES program (*See* § 402 and the implementing regulations generally found at 40 C.F.R. §§ 122, 124, 125, and 136), CWA § 308(a), 33 USC § 1318(a), and applicable state regulations to include requirements such as monitoring and reporting in NPDES permits.

The monitoring requirements included in this permit have been established to yield data representative of the discharges under the authority of §§ 308(a) and 402(a)(2) of the CWA, and consistent with 40 C.F.R. §§ 122.41(j), 122.43(a), 122.44(i) and 122.48. The monitoring requirements included in this permit specify routine sampling and analysis, which will provide ongoing, representative information on the levels of regulated constituents in the wastewater

discharge streams. The monitoring program is needed to assess effluent characteristics, evaluate permit compliance, and determine if additional permit conditions are necessary to ensure compliance with technology-based and water quality-based requirements, including WQSs. 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 § 304(a)(1) of the CWA, 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 C.F.R. § 122. Therefore, the monitoring requirements in this permit are included for specific regulatory use in carrying out the CWA.

NPDES permits require that the approved analytical procedures found in 40 C.F.R. § 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 C.F.R. § 122.21(e)(3) (completeness), 40 C.F.R. § 122.44(i)(1)(iv) (monitoring requirements) and/or as cross referenced at 40 C.F.R. § 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 applicable water quality criterion or permit limitation for the measured pollutant or pollutant parameter; or
- In the case of permit applications, the ML is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or parameter in the discharge; or
- The method has the lowest ML of the EPA-approved analytical methods.

2.4.2 Reporting Requirements

The Draft Permit requires the Permittee to electronically report monitoring results obtained during each calendar month as a Discharge Monitoring Report (DMR) to EPA and the State

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[2] Federal Register, Vol. 79, No. 160, Tuesday, August 19, 2014; FR Doc. 2014–19557.

[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* Federal Register, Vol. 79, No. 160, Tuesday, August 19, 2014; FR Doc. 2014–19557.

using NetDMR no later than the 15th day of the month following the completed reporting period.

NetDMR is a national web-based tool for regulated CWA Permittees to submit DMRs electronically via a secure internet application to EPA through the Environmental Information Exchange Network. NetDMR has allowed participants to discontinue mailing in hard copy forms to EPA under 40 C.F.R. §§ 122.41 and 403.12. NetDMR is accessed from the following website: https://netdmr.zendesk.com/hc/en-us. Further information about NetDMR can be found on the EPA Region 1 NetDMR website.[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 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 II Standard Conditions.

2.5 Anti-backsliding

A permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in a previous permit unless in compliance with the anti-backsliding requirements of the CWA. See §§ 402(o) and 303(d)(4) of the CWA and 40 C.F.R. § 122.44(l)(1 and 2). Anti-backsliding provisions apply to effluent limits based on technology, water quality, Best Professional Judgement (BPJ) and state certification requirements.

All proposed limitations in the Draft Permit are at least as stringent as limitations included in the 2005 Permit unless specific conditions exist to justify one of the exceptions listed in 40 C.F.R. § 122.44(l)(2)(i) and/or in accordance with § 303(d)(4). Discussion of any applicable exceptions are discussed in sections that follow. Therefore, the Draft Permit complies with the anti-backsliding requirements of the CWA.

3 Description of Facility and Discharge

3.1 Location and Type of Facility

The location of the treatment plant and Outfall 035 to the Merrimack River are shown in Figure 1. Outfall 035 is located at latitude 42.64810 N and longitude 71.28753 W.

The Lowell Regional Wastewater Utility (Lowell RWWU) is an activated sludge wastewater treatment facility that is engaged in the collection and treatment of municipal wastewater. Currently, the Facility serves approximately 110,000 residents in the Town of Lowell, 25,000 in the Town of Tewksbury, 20,000 in the Town of Dracut, 5,000 in the Town of Tyngsboro and 20,000 in the Town of Chelmsford (180,000 total).

The Facility has a design flow of 32 MGD and the average for the last 5 years has been 25 MGD.

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

Wastewater is comprised of domestic wastewater, industrial wastewater, septage and stormwater.

There are 30 industrial users that discharge to the POTW. Pollutants introduced into POTWs by a non-domestic source shall not pass through the POTW or interfere with the operation or performance of the treatment works.

Additionally, there are four Co-permittees. The Towns of Chelmsford, Dracut, Tewksbury and Tyngsborough, Massachusetts own and operate sanitary wastewater collection systems that discharge flows to the WWTF for treatment. These municipalities are Co-permittees for certain activities pertaining to proper operation and maintenance of their respective collection systems (*See* Parts I.B, I.C. and I.D of the Draft Permit) which ensures that they comply with requirements to operate and maintain the collection systems so as to avoid discharges of sewage from the collection systems. These Co-permittees did not apply for permit coverage; with letters sent August 6, 2015, EPA waived application requirements for the four Co-permittees.

A quantitative description of the discharge in terms of effluent parameters, based on monitoring data submitted by the Permittee from January 2014 through December 2018 is provided in Appendix A of this Fact Sheet.

3.1.1 Treatment Process Description

The Lowell RWWU is an activated sludge secondary treatment facility. Influent and septage enter the facility and flow through a mechanical screen. The flow is then split in to six primary clarifiers for settling. Afterwards, the flow is split in to eight aeration basins. A fine-bubble aeration system (installed in 2011) aerates the mixed liquor using four 300 hp centrifugal turbo-blowers. Flow then enters four secondary clarifiers. After flow exits the secondary clarifier, chlorine is added for disinfection. Sodium bisulfite is added to dechlorinate the effluent prior to discharge to a diffuser in the middle of the Merrimack River.

Settled material from the primary clarifier is thickened via gravity thickener. Settled material from the secondary clarifier is put in to a rotary drum thickener (RDT). Sixty percent of the sludge from the primary clarifier is combined with 20 percent of sludge from the secondary clarifier and 20 percent septage for dewatering. The solution is dewatered using a belt filer. In 2018, 25,116 wet tons of sludge were generated at the Lowell RWWU. This sludge is disposed of via landfill and offsite composting.

3.1.2 Collection System Description

The collection system in Lowell is a combination of combined and separate sewers. The collection systems for Tewksbury, Dracut, Tyngsboro, and Chelmsford are separate. A combined sewer system conveys domestic, industrial and commercial sewage in addition to stormwater during storm events. A separate sanitary sewer conveys domestic, industrial and commercial sewage, but not stormwater. It is part of a “two pipe system” consisting of separate sanitary sewers and storm sewers. The two systems have no interconnections; the sanitary sewer leads to the wastewater treatment plant and the storm sewers discharge to a local water body.

4 Description of Receiving Water and Dilution

The Lowell RWWU discharges through Outfall 035 into the Merrimack River within Segment MA84A-03. This segment is 8.8 miles in length and extends from the Lowell RWWU outfall at Duck Island, Lowell to the Essex Dam, Lawrence.

The Lowell RWWU is also authorized to discharge from nine (9) Combined Sewer Overflows (CSOs). CSO 002 discharges to Segment MA84A-01 of the Merrimack River. This segment is 9 miles in length and flows from the state line at Hudson, NH/Tyngsborough to Pawtucket Dam, Lowell. CSOs 008, 027, 030 (1&2), 011 and 012 discharge to Segment MA84A-02 of the Merrimack River. This segment is 3.2 miles in length. It begins at Pawtucket Dam, Lowell and runs to the Lowell RWWU outfall at Duck Island, Lowell. CSO 007 discharges to Beaver Brook within Segment MA84A-11. This segment is 4.8 miles in lengths and travels from the New Hampshire state line near Dracut to the confluence with the Merrimack River in Lowell. CSO 020 discharges to the Concord River within Segment MA82A-09. This segment is 0.9 miles in length and flows from the Rogers Street Bridge, Lowell to the confluence with the Merrimack River in Lowell.

Segments MA84A-03, MA84A-01, MA84A-02, and MA82A-09 have been classified as Class B, warm water fishery in the Massachusetts WQSs, 314 Code of Massachusetts Regulations ("CMR") 4.05(4)(a) The MA WQS at 314 CMR 4.05(3)(b) state that Class B "*waters are designated as habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be a source of public water supply and with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value."* MA WQS at 314 CMR 4.06 (1)(d)(8) states that for warm water fisheries *"dissolved oxygen and temperature criteria for warm water fisheries apply.*"

Segment MA84A-11 is classified as a Class B, cold water fishery in the Massachusetts WQS. Class B "*waters are designated as habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be a source of public water supply with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value."* Beaver Brook has the added qualifier of being a cold water fishery. MA WQS at 314 CMR 4.06 (1)(d)(7) states with regard to cold water fisheries; "*in these waters dissolved oxygen and temperature criteria for cold water fisheries apply. Certain waters not designated as cold water in 314 CMR 4.00 may contain habitat that supports a cold water fish population and, in such cases, the cold water fish population and habitat shall be protected and maintained as existing uses. The Massachusetts Division of Fisheries and Wildlife is responsible for identifying cold water fish populations that meet their protocol regardless of whether or not the water meets the cold water criteria on 314 CMR 4.00. Where cold water population has been identified by the Division of Fisheries and Wildlife as meeting their protocol, but the water has not been documented to meet the cold water criteria in 314 CMR 4.00, the Department will protect the existing cold water fish population*

and its habitat as an existing use.

Segments MA84A-01, MA84A-02 and MA84A-03 also include classification qualifiers for treated water supply and CSO. Segment MA82A-09 includes a classification qualifier for CSO. The MA WQSs at 314 CMR 4.06 (1)(d)6 states that the qualifier, treated water supply "*denotes those Class B waters that are used as a source of public water supply after appropriate treatment. These waters may be subject to more stringent site-specific criteria established by the Department as appropriate to protect and maintain the use."* The MA WQSs do not include any site-specific criteria for these segments. The MA WQSs at 314 CMR 4.06(1)(d)10 state that waters with the qualifier 'CSO' "*are identified as impacted by the discharge of combined sewer overflows; however, a long-term control plan has not been approved or fully implemented for the CSO discharges.*"

A summary of the ambient data collected in the receiving water upstream of the outfall can be found in Appendix A of this Fact Sheet.

The MassDEP's Massachusetts Year 2014 Integrated List of Waters (2014 Integrated List), the 303(d) list, includes the segments of the Merrimack River, Beaver Brook and the Concord River as a Massachusetts Category 5 Waters and in need of a total maximum daily load (TMDL).

Table 1: Receiving Water Segments and Impairment Causes from *Massachusetts Year 2014 Integrated List of Waters,* MassDEP December 2015

Name	Segment ID	Impairment Cause
Beaver Brook	MA84A-11	(Debris/Floatables/ Trash) (Physical substrate habitat alterations) Aquatic Macroinvertebrate Bioassessments Escherichia coli (*E. coli*) Taste & Odor Turbidity
Merrimack River	MA84A-01	Fecal Mercury in Fish Tissue
Merrimack River	MA84A-02	(Low flow alterations) E. coli Mercury in Fish Tissue Phosphorus (Total)
Merrimack River	MA84A-03	E.coli Mercury in Fish Tissue PCB in Fish Tissue Phosphorus (Total)
Concord River	MA82A-09	(Debris/Floatables/Trash) Excess Algal Growth Fecal Coliform Mercury in Fish Tissue Phosphorus (Total)

In 1975 a Water Quality Management Plan was developed for the Merrimack River[5]. The plan includes a wasteload allocation for the Lowell RWWU based on the secondary treatment requirements of BOD_5 of 30 mg/L at the design flow of 34 MGD for a BOD_5 load of 8,500 lb/day.

4.1 Available Dilution

7-Day, 10-Year Low Flow

To ensure that discharges do not cause or contribute to violations of WQS under all expected circumstances, WQBELs are derived assuming critical conditions for the receiving water (*See* EPA Permit Writer's Manual, Section 6.2.4). For most pollutants and criteria, the critical flow in rivers and streams is some measure of the low flow of that river or stream. Massachusetts water quality regulations require that the available effluent dilution be based on the 7-day, 10-year low flow (7Q10 flow) of the receiving water (314 CMR 4.03(3)(a)). The 7Q10 low flow is the mean low flow over 7 consecutive days, recurring every 10 years.

The 7Q10 flow used in the Draft Permit has been extrapolated from flow data from the most recent 30 years (January 1989 to October 2017) at U.S. Geological Survey gage station no. 01100000 in the area of the Merrimack River in Lowell, MA. The discharge is located about 77 miles downstream from the headwaters of the Merrimack River (at the confluence of the Pemigewassett and Winnipesaukee Rivers in Franklin, NH). The total drainage area for the Merrimack River watershed is about 5,010 square miles; the drainage area upstream of the discharge is about 4,635 square miles.

7Q10 at USGS 01100000 - Merrimack River near Lowell, MA = 832 cubic feet per second (cfs)

Since the gage is just upstream of the Lowell discharge, the 7Q10 for the receiving water at Lowell is also 832 cfs or 537 MGD.

The dilution factor (DF) was calculated using the upstream 7Q10 flow of 537 MGD (Q_s) and the Facility's design flow of 32 MGD (Q_d), as shown below:

$$DF = (Q_s + Q_d)/Q_d = (537 \text{ MGD} + 32 \text{ MGD}) / 32 \text{ MGD} = 17.8$$

5 Proposed Effluent Limitations and Conditions

The proposed limitations and conditions, the bases of which are discussed throughout this Fact Sheet, may be found in Part I of the Draft Permit. EPA determined the pollutants of concern based on EPA's technology-based effluent requirements, pollutants believed present in the permit application, and other information.

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[5] Massachusetts Department of Environmental Quality Engineering, Division of Water Pollution Control, 1975, "Merrimack River Basin, Water Quality Management Plan"

5.1 Effluent Limitations and Monitoring Requirements

In addition to the State and Federal regulations described in Section 2, data submitted by the Permittee in their permit application as well as in monthly discharge monitoring reports (DMRs) and in WET test reports from January 2014 to December 2018 (the "review period") were used to identify the pollutants of concern and to evaluate the discharge during the effluent limitations development process (*See* Appendix A).

5.1.1 Wastewater Effluent Flow

The effluent flow limit in the 2005 Permit is 32 MGD, as a rolling annual average flow, based on the Lowell RWWU's design flow. There were 2 violations of the flow limit during the review period.

The Draft Permit continues the 32 MGD flow limit from the 2005 Permit. The Draft Permit requires that flow be measured continuously and that the rolling annual average flow, as well as the average monthly and maximum daily flow for each month be reported. The rolling annual average flow is calculated as the average of the flow for the reporting month and 11 previous months.

5.1.2 Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)

5.1.2.1 $CBOD_5$ Concentration-Based Limits

The $CBOD_5$ limits in the 2005 Permit were established based on the secondary treatment standards in 40 C.F.R. § 133.102; the average monthly limit is 25 mg/L, and the average weekly limit is 40 mg/L. The daily maximum limit is 50 mg/L. All limits apply year-round.

There was one violation of the $CBOD_5$ concentration limits during the review period.

The Draft Permit proposes the same $CBOD_5$ concentration limits as in the 2005 Permit as no new WLAs have been established and there have been no changes to the secondary treatment standards. The monitoring frequency remains 5 times per week.

5.1.2.2 $CBOD_5$ Mass-Based Limits

The mass-based $CBOD_5$ limit in the 2005 Permit of 6,672 lb/day (monthly average) is based on EPA's secondary treatment standards (25 mg/L) and the design flow of the Facility (32 MGD).

There were no violations of $CBOD_5$ mass limits during the review period.

In the Draft Permit, calculations of maximum allowable loads for average monthly and average weekly $CBOD_5$ 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 Facility
8.34 = Factor to convert effluent concentration in mg/L and design flow in MGD to lb/day

Monthly Average: 25 mg/L * 32 MGD * 8.34 = 6,672 lb/day
Weekly Average: 40 mg/L* 32 MGD * 8.34 = 10,675 lb/day

The monthly average mass-based limit is the same as that in the 2005 Permit and the weekly average mass-based limit is newly established. The weekly mass-based limit is based on secondary treatment standards in 40 C.F.R. § 133.102. The new limit is well above the level of $CBOD_5$ currently being discharged and therefore EPA expects that the Lowell RWWU will continue to meet their $CBOD_5$ limits without any further adjustments to their treatment process. The new mass based $CBOD_5$ limits are 6,672 lb/day (monthly average) and 10,675 lb/day (weekly average). The monitoring frequency remains 5 times per week.

5.1.3 Total Suspended Solids (TSS)

5.1.3.1 TSS Concentration-Based Limits

The TSS limits in the 2005 Permit were established based on the secondary treatment standards in 40 C.F.R. § 133.102; the average monthly limit is 30 mg/L and the average weekly limit is 45 mg/L. Additionally, the daily maximum limit is 50 mg/L. All limits apply year-round.

There were seven violations of the TSS concentration limits during the review period.

The Draft Permit proposes the same TSS concentration limits as in the 2005 Permit as no new WLAs have been established and there have been no changes to the secondary treatment standards. The monitoring frequency remains 5 times per week.

5.1.3.2 TSS Mass-Based Limits

The mass-based TSS limit in the 2005 Permit of 8,006 lb/day (monthly average) is based on EPA's secondary treatment standards (30 mg/L) and the design flow of the Facility (32 MGD). The monthly average mass-based limit has been corrected in the Draft Permit: it was miscalculated in the 2005 Permit.

There were two violations of the TSS mass limits during the review period.

In the Draft Permit, calculations of maximum allowable loads for average monthly and average weekly 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 Facility
8.34 = Factor to convert effluent concentration in mg/L and design flow in MGD to lb/day

Monthly Average: 30 mg/L * 32 MGD * 8.34 = 8,006 lb/day
Weekly Average: 45 mg/L* 32 MGD * 8.34 = 12,010 lb/day

The monthly average mass-based limit is the same as the limit in the 2005 Permit and the weekly average mass-based limit is newly established. The weekly mass-based limit is based on secondary treatment standards in 40 C.F.R. § 133.102. The new limit is well above the level of TSS currently being discharged and therefore EPA expects that the facility will continue to meet their TSS limits without any further adjustments to their treatment process. The monitoring frequency remains 5 times per week.

5.1.4 Eighty-Five Percent (85%) $CBOD_5$ and TSS Removal Requirement

In accordance with the provisions of 40 C.F.R. § 133.102(a)(3), (4) and (b)(3), the 2005 Permit requires that the 30-day average percent removals for $CBOD_5$ and TSS are not less than 85%.

The requirements to achieve 85% $CBOD_5$ and TSS removal have been carried forward into the Draft Permit.

5.1.5 pH

Consistent with the requirements of Massachusetts WQS at 314 CMR 4.05(3)(b)(3), the Permit requires the pH of the effluent to be not less than 6.5 or greater than 8.3 standard units (S.U.) at any time. The pH range was widened from 6.5 – 8.3 S.U. to 6.0 – 8.3 S.U. in 1994. However, EPA and the state determined that the pH range shall be consistent with the WQS. Therefore, the Lowell RWWU's request to maintain the existing pH limits due to low influent pH cannot be granted. The monitoring frequency is once per day. There was one violation of the pH limit during the review period.

5.1.6 Bacteria

The 2005 Permit includes effluent limitations for bacteria using fecal coliform bacteria as the indicator bacteria with an average monthly limit of 200 colony forming units (cfu)/100 ml and daily maximum limit of 400 cfu/100 ml. These limits were based on the applicable WQS at the time the permit was issued. There were no violations of the fecal coliform limitation during the review period.

Consistent with Massachusetts' new bacteria criteria, which were approved by EPA on September 19, 2007, the bacteria limits proposed in the Draft Permit for Outfall 035 are 126 colony forming units (cfu) of *E.coli* per 100 milliliters (mL) as a geometric mean and 409 cfu of *E.coli* per 100 mL maximum daily value (this is the 90% distribution of the geometric mean of 126 cfu/100 mL[6]). The bacteria limits apply year-round and the monitoring frequency is five (5) per week. Due to the change in the Massachusetts bacteria criteria, there are no effluent limits or monitoring requirements for fecal coliform in the Draft Permit.

5.1.7 Dissolved Oxygen

The 2005 Permit included a dissolved oxygen (DO) monitoring requirement from April through October. This requirement was established to ensure that dissolved oxygen levels remain above the state water quality standard of 5.0 mg/L, particularly during low flow periods.

The DMR data during the review period show that there have been no violations of the DO criterion with a minimum of 7.3 mg/L.

5.1.8 Total Residual Chlorine

The Permittee uses chlorine disinfection. The 2005 Permit includes effluent limitations for total residual chlorine (TRC) of 210 µg/L (monthly average) and 370 µg/L (maximum daily). There were not violations of the TRC limitations during the review period.

The TRC permit limits are based on the instream chlorine criteria defined in *National Recommended Water Quality Criteria: 2002*, EPA 822R-02-047 (November 2002), as adopted by the MassDEP into the state water quality standards at 314 CMR 4.05(5)(e). These freshwater instream criteria for chlorine are 11 µg/l (chronic) and 19 µg/l (acute). Because the upstream chlorine is assumed to be zero in this case, the water quality-based chlorine limits are calculated as the criteria times the dilution factor, as follows:

Chronic criteria * dilution factor = Chronic limit
11 µg/l * 17.8 = 196 µg/l (average monthly)

Acute criteria * dilution factor = Acute limit
19 µg/l * 17.8 = 338 µg/l (maximum daily)

These limits are included in the Draft Permit and are more stringent than the previous limits due to the revised dilution factor. The monitoring frequency for TRC is once per day using a grab sample. Additionally, TRC in the effluent shall be monitored continuously. Compliance will be based upon grab sample results. The results of the grab sample and comparison to the continuous analyzer reading, including the time of the grab sample, shall be included with the discharge monitoring reports (DMRs). Continuous monitoring should continue, and the Draft Permit requires that the chlorination system include an alarm system for indicating interruptions and malfunctions.

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

5.1.9 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 toxicity level of ammonia depends on the temperature and pH of the receiving water (USEPA 1999). The applicable ammonia water quality criteria are pH and, for the chronic criteria, temperature dependent and can be derived using EPA-recommended ammonia criteria from the document: *Update of Ammonia Water Quality Criteria for Ammonia,* 1999 (EPA 822-R-99-014). These are the freshwater ammonia criteria in EPA's *National Recommended Water Quality Criteria,* 2002 (EPA 822-R-02-047) document, which are included by reference in the Massachusetts WQS (*See* 314 CMR 4.05(5)(e)). The chronic criteria are also dependent on whether early life stages of fish are present. The Merrimack River in the vicinity of the Lowell RWWU discharge is within Essential Fish Habitat (EFH) for Atlantic salmon (*Salmo salar*), so EPA has assumed that salmonids could be present in the receiving waters (see Section 6.2).

The 2005 Permit required quarterly monitoring for ammonia as well as quarterly ambient monitoring as part of the Whole Effluent Toxicity (WET) testing. Ambient data, taken upstream of the Lowell RWWU outfall in the Merrimack River, is presented in Appendix A and shows ammonia concentrations that range from 0 to 0.5 mg/L. The median concentration for the warm weather period (April 1 through October 31) is 0.1 mg/L and for the cold weather period (November 1 through March 31) is 0.2 mg/L. Ambient sampling included pH monitoring as well, which indicates that the median pH is 6.9 S.U. in warm weather and 6.5 S.U. in cold weather. Ambient temperature data is not available, so EPA has assumed a warm weather temperature of 25° C and a cold weather temperature of 5° C. Based on this information, the applicable ammonia criteria are summarized in Table 2 below.

In determining whether the discharge has the reasonable potential to cause or contribute to excursions above the instream water quality criteria for ammonia, the following mass balance equation is used to project the instream ammonia concentrations downstream from the discharge under 7Q10 conditions during both warm and cold weather.

$$Q_d C_d + Q_s C_s = Q_r C_r$$

Solving for the downstream pollutant concentration (C_r) gives:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r}$$

Where:

Q_s = 7Q10 flow upstream of Facility (832 cfs)
Q_d = design flow of Facility (32 MGD = 49.5 cfs)
Q_r = combined stream flow (7Q10 + design flow = 832 + 49.5 = 881.5 cfs)
C_s = median upstream ammonia concentration
= 0.1 mg/L in warm weather
= 0.2 mg/L in cold weather

C_d = effluent ammonia concentration
= 95th percentile[7] of warm weather data (N=14) = 21.6 mg/L
= maximum of cold weather data (N=5) = 24 mg/L

Reasonable potential is then determined by comparing this resultant in-stream concentration with the relevant acute and chronic criteria. The discharge is determined to have the reasonable potential to cause or contribute to a violation of water quality standards if both the effluent concentration (C_d) and the downstream concentration (C_r) exceed the criteria. In EPA's Technical Support Document for Water Quality Based Toxics Control, EPA/505/2-90-001, March 1991, commonly known as the "TSD", box 3-2 describes the statistical approach in determining if there is reasonable potential for an excursion above the maximum allowable concentration. If there is reasonable potential, the appropriate limit is then calculated by rearranging the above mass balance to solve for the effluent concentration (C_d) using the relevant criterion as the resultant in-stream concentration (C_r). Table 2 shows the results of the reasonable potential analysis and the resulting limits, if necessary.

Table 2: Ammonia Reasonable Potential Analysis and Limit Derivation

Season	Q_s	C_s	Q_d	C_d	Q_r	C_r	Criteria	Reasonable Potential	Limits
	cfs	mg/l	cfs	mg/l	cfs	mg/l	mg/l	C_d & C_r > Criteria	µg/l
Warm Weather – Chronic	832	0.1	49.5	21.6	881.5	1.31	3.1	N	N/A
Warm Weather – Acute		0.1		21.6		1.31	26.2	N	N/A
Cold Weather – Chronic		0.2		24		1.54	6.7	N	N/A
Cold Weather - Acute		0.2		24		1.54	32.6	N	N/A

Based on the analysis, there is no reasonable potential, so the Draft Permit does not require ammonia limits. Effluent and ambient monitoring for ammonia will continue to be required in the quarterly WET tests.

5.1.10 Nutrients

Nutrients are compounds containing nitrogen and phosphorus. Although nitrogen and phosphorus are essential for plant growth, high concentrations of these nutrients can cause eutrophication, a condition in which aquatic plant and algal growth is excessive. Plant and algae respiration and decomposition reduces dissolved oxygen in the water, creating poor habitat for fish and other aquatic animals. Recent studies provide evidence that both phosphorus and nitrogen can play a role in the eutrophication of certain ecosystems. However, typically phosphorus is the limiting nutrient triggering eutrophication in fresh water ecosystems and

[7] The Facility's effluent concentrations (*See* Appendix A) were characterized assuming a lognormal distribution to determine the estimated 95th percentile of the daily maximum (*See* Appendix C).

nitrogen in marine or estuarine ecosystems. Thus, for this receiving water, phosphorus and nitrogen are both nutrients of concern at this location. The Lowell RWWU discharges into a freshwater segment of the Merrimack River and downstream of the discharge the river is a marine water.

5.1.10.1 Nitrogen

The Merrimack River is a large and densely populated watershed including 40 POTW discharges in Massachusetts and New Hampshire. EPA estimates that approximately 15,000 lb/day of nitrogen is discharged by POTWs into the fresh water portion of the watershed and another 2,000 lb/day into the marine portion. Recent nitrogen data collected by CDM Smith in 2014 and 2016 in the estuarine portions of the Merrimack River indicate elevated total nitrogen and chlorophyll 'a' levels. High nutrient concentrations can lead to increased levels of chlorophyll 'a', therefore chlorophyll 'a' can be an indicator of elevated nutrient concentrations. In samples with salinity greater than 10 ppt, total nitrogen ranged from 0.442 to 1.67 mg/L while chlorophyll 'a' ranged from 4 to 42 µg/L[8]. EPA collected samples on outgoing tides in 2017 in this area and found total nitrogen levels in the range of 0.62 mg/L to 1.3 mg/L and chlorophyll 'a' ranging from 2 to 11 µg/L in samples with salinity greater than 10 ppt. EPA is concerned about the impacts that these nitrogen levels may be having on aquatic life in the estuary as most of these results are outside the range typically found in healthy estuaries in Massachusetts.[9] However, more data is necessary to determine whether there is reasonable potential for nitrogen discharges from the facility to cause or contribute to a violation of the Massachusetts narrative nutrient criteria in the Merrimack River estuary, particularly data that characterizes aquatic life designated uses that may be affected in this area so that the narrative criteria can be interpreted numerically. In the meantime, EPA finds that quantifying the load of total nitrogen from this facility and others in the Merrimack River watershed is an important step to understanding the loading of nitrogen from point sources and their potential impact on the estuary.

The 2005 Permit included monitoring and reporting requirements for the sum of nitrite and nitrate and total Kjeldahl nitrogen (TKN). Appendix A provides quarterly DMR data from January 2014 through October 2018. The nitrite plus nitrate averaged of 3.47 mg/L and TKN averaged of 13.5 mg/L.

The Draft Permit includes weekly monitoring and reporting requirements for total nitrate plus total nitrite, total Kjeldahl nitrogen and total nitrogen from April through October and monthly reporting from November through March. The monitoring data will provide additional information on the fate of nitrogen through the treatment process and the impact to the Merrimack River estuary. The Agencies recommend the Permittee factor in treatment methods to reduce nitrogen in the effluent for any planned upgrades at the treatment plant, as nitrogen limits may be included in subsequent permits.

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[8] CDM Smith/US Army Corps of Engineers New England District, *Merrimack River Watershed Assessment Study - Phase III Final Monitoring Data Report August 2017*, Appendix C.

[9] Howes, Brian, et al, *Site-Specific Nitrogen Thresholds for Southeastern Massachusetts Embayments: Critical Indicators Interim Report*, Massachusetts Estuaries Project, December 22, 2003.

5.1.10.2 Phosphorus

Phosphorus is an essential nutrient for the growth of aquatic plants and 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.

The 2005 Permit includes monthly monitoring and reporting requirement of the maximum daily effluent concentration. Review of the total phosphorus data reported on the discharge monitoring reports from January 2014 through December 2018 is provided in Attachment A. During the growing season (April through October) within the review period, the range of phosphorus was 0.9 mg/L to 3.6 mg/L with an average of 2.29 mg/L.

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 develop in a TMDL. Nutrients are also prohibited in concentrations that would cause or contribute to cultural eutrophication.

In the absence of numeric criteria for phosphorus, EPA uses nationally recommended criteria and other technical guidance to develop effluent limitations for the discharge of phosphorus. EPA has published national guidance documents that contain recommended total phosphorus criteria and other indicators of eutrophication. EPA's 1986 *Quality Criteria for Water* (the "Gold Book") recommends that in-stream phosphorus concentrations not exceed 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. For this segment of the Merrimack River, the 0.1 mg/L would apply downstream of the discharge.

More recently, EPA has released recommended Ecoregional Nutrient Criteria, established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published criteria represent conditions in waters within ecoregions that are minimally impacted by human activities, and thus free from the effects of cultural eutrophication. The Merrimack River is located within Ecoregion XIV, Eastern Coastal Plains. The recommended total phosphorus criteria for this ecoregion, found in *Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV (*EPA December 2000) is 31.25 µg/L (0.03125 mg/L).

EPA uses the effects-based Gold Book threshold as a general target applicable in free-flowing streams. As the Gold Book notes, there are natural conditions of a water body that can result in either increased or reduced eutrophication 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. In this case, EPA is not aware of any evidence that the Merrimack River is unusually susceptible to eutrophication impacts, so that the 100 µg/L threshold appears sufficient in this receiving water.

Elevated concentrations of chlorophyll 'a', excessive algal and macrophyte growth, and low levels of dissolved oxygen are all effects of nutrient enrichment. The relationship between these factors and high in-stream total phosphorus concentrations is well documented in scientific literature, including guidance developed by EPA to address nutrient over-enrichment (Nutrient Criteria Technical Guidance Manual – Rivers and Streams, EPA July 2000 [EPA-822-B-00-002]).

Sampling data from the Merrimack River upstream of the discharge is shown in Table 3.[10]

Table 3. Instream Total Phosphorus Data, µg/L

Sampling Date	Phosphorus Concentration (µg/L)
5/24/2018	34.88
6/14/2018	48.82
7/31/2018	44.75
8/1/2018	64.08
8/27/2018	37.63
8/28/2018	44.64
8/29/2018	38.56
9/6/2018	38.56
Median	41.60

EPA has decided to apply the Gold Book criterion because it was developed from an effects-based approach versus the reference conditions-based approach used to develop the ecoregion criteria. The effects-based approach is taken because it is more directly associated with an impairment to a designated use (e.g. fishing). The effects-based approach provides a threshold value above which water quality impairments are likely to occur. It applies empirical observations of a causal variable (i.e. phosphorus) and a response variable (i.e. algal growth) associated with designated use impairments. Referenced-base values are statistically derived from a comparison within a population of rivers in the same ecoregional class. They are a quantitative set of river characteristics (physical, chemical, and biological) that represent minimally impacted conditions.

In determining whether the discharge has the reasonable potential to cause or contribute to excursions above the instream water quality criteria for phosphorus, a mass balance equation is

[10] Coastal Systems Program, SMAST, University of Massachusetts Dartmouth, New Bedford, Massachusetts, 2018.

used to project the instream phosphorus concentration downstream of the discharge under 7Q10 conditions.

$$Q_dC_d + Q_sC_s = Q_rC_r$$

Solving for the downstream phosphorus concentration:

$$C_r = \frac{Q_dC_d + Q_sC_s}{Q_r}$$

C_r = downstream phosphorus concentration in the Merrimack River
Q_d = design flow of treatment plant (49.5 cfs)
C_d = 95th percentile of effluent phosphorus concentrations discharged from the facility during the growing season (3.77 mg/L)
Q_s = 7Q10 low flow of Merrimack River upstream of the discharge (832 cfs)
C_s = median phosphorus concentration upstream in the Merrimack River (0.0416 mg/L)
Q_r = flow in the river downstream of the discharge (49.5 + 832 = 881.5 cfs)

$$C_r = \frac{(832 \text{ cfs})(0.0416 \text{ mg/L}) + (49.5 \text{ cfs})(3.77 \text{ mg/L})}{881.5 \text{ cfs}}$$

$$C_r = 0.251 \text{ mg/L}$$

The phosphorus concentration downstream, 0.251 mg/L, of the discharge is greater than the recommended Gold Book water quality criterion of 0.100 mg/L so there is reasonable potential for total phosphorus discharged from the facility to cause or contribute to a violation of the Gold Book recommended criteria and a limit is required in the Draft Permit.

$$C_d = (Q_r C_r - Q_sC_s)/Q_d$$

C_r = downstream phosphorus concentration in the Merrimack River (0.100 mg/L)
Q_d = design flow of treatment plant (49.5 cfs)
C_d = phosphorus concentrations discharged from the facility to achieve the recommended Gold Book criteria
Q_s = 7Q10 low flow of Merrimack River upstream of the discharge (832 cfs)
C_s = median phosphorus concentration in the Merrimack River at upstream sampling station (0.0416 mg/L)
Q_r = flow in the river downstream of the discharge, (881.5 cfs)

$$C_d = \frac{(881.5 \text{ cfs})(0.100 \text{ mg/L}) - (832 \text{ cfs})(0.0146 \text{ mg/L})}{49.5 \text{ cfs}}$$

$$C_d = 1.08 \text{ mg/L}$$

Given there is reasonable potential for the discharge to cause or contribute to an exceedance of the recommended Gold Book threshold of 0.100 mg/L and MassDEP has listed the segment of the Merrimack River (MA84-03) that receives the facility's discharge as impaired for Total Phosphorus in the 2014 Massachusetts Integrated List of Waters, a monthly average limit of 1.08

mg/L is in the Draft Permit for April 1 through October 31. The Permittee is required to monitor total phosphorus for the months of November through March.

The average total phosphorus effluent concentration during the growing season from the Lowell RWWU is 2.29 mg/L. Therefore, EPA is establishing a compliance schedule of one (1) year for the facility to come into compliance with the effluent limitation of 1.08 mg/L.

Alternative Mass-Based Approach

Given the significant dilution factor (17.8), EPA is also soliciting comment on an alternative approach which may be used to incorporate a mass-based limit for total phosphorus instead of a concentration-based limit. While the Draft Permit incorporates a concentration-based limit as described above, this alternative mass-based approach is presented below and may replace the concentration-based limit following review of any relevant comments submitted during the public notice period.

A mass-based limit must be calculated to be protective of the same instream Gold Book threshold of 0.100 mg/L. To ensure a mass-based limit is protective under critical flow conditions, the limit is calculated using the lowest expected receiving water flow and lowest expected effluent flow. In this case, the upstream 7Q10 receiving water flow is 832 cfs and the lowest monthly average effluent flow during the review period is 16.8 MGD or 26.0 cfs (from Sept 2014; data provided by Lowell on May 24, 2019). The numeric mass-based limit is determined based upon the following mass balance equation:

$$Q_d C_d + Q_S C_S = Q_r C_r$$

Rewritten as:

$$Q_d C_d = Q_r C_r - Q_S C_S$$

Converting to mass-based:

$$M_d = Q_d C_d * 8.345 = (Q_r C_r - Q_S C_S) * 8.345$$

Where:

M_d = mass-based phosphorus limit
Q_d = effluent flow in MGD (lowest effluent monthly average flow = 26.0 cfs)
C_d = effluent phosphorus concentration in mg/L
Q_s = 7Q10 flow of Merrimack River upstream of the discharge (832 cfs)
C_s = median phosphorus concentration in the Merrimack River at upstream sampling station (0.0416 mg/L)
Q_r = downstream 7Q10 flow ($Q_s + Q_d$ = 858 cfs)
C_r = downstream river phosphorus concentration (Gold Book target = 0.100 mg/L)
8.345 = factor to convert from *MGD * mg/l* to *lb/day*

Solving for M_d gives the maximum allowable mass the facility may discharge without violating

water quality standards. This allowable discharge is 276 lb/day, which is equivalent to a concentration of 1.03 mg/L at the design flow of 32 MGD and equivalent to 1.96 mg/L at the lowest monthly average flow of 16.8 MGD.

From 2014 through 2018, monthly average total phosphorus discharged by the facility from April to October ranged from 204.0 lb/day to 789.4 lb/day with an average of 446.6 lb/day over this 5-year period. EPA would apply a compliance schedule of 1 year for the facility to come into compliance with this alternative mass-based limit.

Under this alternative approach, the Draft Permit would include a monthly average phosphorus limit of 276 lb/day from April 1 through October 31 with monitoring frequency of once per week during April through October and once per month from November through March.

5.1.11 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 Draft 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, given the updated upstream hydrologic and chemical characteristics of the receiving water. Effluent and receiving water data from the Whole Effluent Toxicity (WET) tests are presented in Appendix A. Additional ambient data was provided by the Permittee using clean sampling techniques and is presented in Table 4 below.

Table 4: Supplemental Upstream Metals Data

Sampling Date	Aluminum	Cadmium	Copper	Lead	Nickel	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
07/11/2016	0.041	0	0.0011	0	0	0.005
10/03/2016	0.018	0	0.0011	0.0002	0	0.003
11/08/2016	0.064	0	0.0009	0.0003	0	0.005
09/28/2017	0.035	0	0.0009	0.0003	0	0.004
10/18/2017	0.023	0	0.0008	0.0002	0	0.006
10/25/2017	0.021	0	0.0009	0	0	0.024
07/30/2018	0.1	0	0.0011	0.0005	0	0.006

In general, this supplemental data has been used in combination with the WET test data for characterizing ambient conditions. However, for aluminum EPA compared this additional ambient data to the WET test data and observed that all samples were taken at approximately the same location within the receiving water and two samples (July 2016 and October 2016) were taken on the same day and at the same time and the results indicated that the data using clean sampling techniques was significantly lower that the aluminum data from the WET tests. For this reason, EPA has chosen to use only the clean sampling data for aluminum in this analysis.

5.1.11.1 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 C.F.R. § 122.45(c) require, with limited exceptions, that effluent limits for metals in NPDES permits be expressed as total recoverable metals.

Massachusetts aluminum criteria are not hardness-dependent and are expressed as total recoverable aluminum. However, 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 Merrimack River downstream of the treatment plant is calculated using the critical low flow (7Q10), 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 the next section (substituting hardness for metal concentration), the resulting downstream hardness is 25.4 mg/L and the corresponding criteria are presented in Appendix B.

5.1.11.2 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, the following mass balance is used to project in-stream metal concentrations downstream from the discharge.

$$Q_d C_d + Q_s C_s = Q_r C_r$$

Solving for the receiving water metal concentration downstream of the discharge (C_r) yields:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r}$$

Where:

Q_s = 7Q10 flow upstream of Facility
Q_d = design flow of Facility
Q_r = combined stream flow (7Q10 + design flow)
C_s = median upstream metal concentration
C_d = effluent metals concentration (95th percentile[11])

Reasonable potential is then determined by comparing this resultant in-stream concentration with the acute and chronic criteria for each metal. The discharge is determined to have the reasonable

[11] The Facility's effluent concentrations (*See* Appendix A) were characterized assuming a lognormal distribution to determine the estimated 95th percentile of the daily maximum (*See* Appendix C).

potential to cause or contribute to a violation of water quality standards if both the effluent concentration (C_d) and the downstream concentration (C_r) exceed the criteria. In EPA's *Technical Support Document for Water Quality Based Toxics Control*, EPA/505/2-90-001, March 1991, commonly known as the "TSD", box 3-2 describes the statistical approach in determining if there is reasonable potential for an excursion above the maximum allowable concentration. If there is reasonable potential for either acute or chronic conditions, the appropriate limit is then calculated by rearranging the above mass balance to solve for the effluent concentration (C_d) using the relevant criterion as the resultant in-stream concentration (C_r).

The results of this analysis for each metal are presented in Appendix B, indicating the Draft Permit does not require any metals limits. Monitoring for each of these metals will continue to be required as part of the quarterly WET tests.

5.1.12 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 Draft 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 this discharge to cause or contribute to an exceedance of the "no toxics in toxic amounts" narrative water quality standard.

Further, EPA Region 1 and MassDEP[12] current toxic policy requires toxicity testing for all dischargers such as the Lowell RWWU. In accordance with these 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

[12] *Implementation Policy for the Control of Toxic Pollutants in Surface Waters*, MassDEP 1990

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}. According to this policy dischargers having a dilution factor between 10 and 20 are required to conduct acute and chronic toxicity testing four times per year for two species.

The chronic and acute WET limits in the 2005 Permit are C-NOEC reporting requirement and LC_{50} greater than or equal to 100%, respectively, using the daphnid, *Ceriodaphnia dubia (C. dubia)*, as the test species. EPA reduced the test species to *Ceriodaphnia dubia* only and made the Chronic limit a report only requirement in the Response to Comments for the 2005 permit. The Facility has consistently met these limits, as can be seen from the DMR summary in Appendix A.

Based on the potential for toxicity from domestic and industrial contributions, the state narrative water quality criterion, the dilution factor of 17.8, and in accordance with EPA national and regional policy and 40 C.F.R. § 122.44(d), the Draft Permit continues the effluent limits from the 2005 Permit including the test organism and the testing frequency. Toxicity testing must be performed in accordance with the updated EPA Region 1 WET test procedures and protocols specified in Attachments A and B of the Draft Permit (USEPA Region 1 Freshwater Acute Toxicity Test Procedure and Protocol, February 2011 and USEPA Region 1 Freshwater Chronic Toxicity Test Procedure and Protocol, March 2013).

5.2 Industrial Pretreatment Program

The Permittee is required to administer a pretreatment program based on the authority granted under 40 C.F.R. 122.44(j), 40 C.F.R. Part 403 and Section 307 of the Act. The Lowell RWWU pretreatment program received EPA approval on December 9, 1998 and, as a result, appropriate pretreatment program requirements were incorporated into the 2005 Permit, which were consistent with that approval and federal pretreatment regulations in effect when the permit was issued.

The Federal Pretreatment Regulations in 40 C.F.R. 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. Those 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 Draft 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 Draft Permit to ensure that the pretreatment program is consistent and up-to-date with all pretreatment requirements in effect. Lastly, the Permittee must continue to 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.

5.3 Sludge Conditions

Section 405(d) of the Clean Water Act requires that EPA develop technical standards regarding the use and disposal of sewage sludge. On February 19, 1993, EPA promulgated technical standards. These standards are required to be implemented through permits. The conditions in the permit satisfy this requirement.

5.4 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 Draft Permit includes a requirement for the Permittee and Co-permittees to control infiltration and inflow (I/I) within the sewer collections systems that they own and operate. The Permittee and Co-permittees shall each develop an I/I removal program commensurate with the severity of I/I in their respective collection systems. This program may be scaled down in sections of the collection system that have minimal I/I.

5.5 Operation and Maintenance of the Sewer System

The standard permit conditions for 'Proper Operation and Maintenance', found at 40 C.F.R. § 122.41(e), require the proper operation and maintenance of permitted wastewater systems and related facilities to achieve permit conditions. The requirements at 40 C.F.R. § 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 adversity affecting human health or the environment. EPA and MassDEP maintain 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 C.F.R. § 122.41(d) and (e).

General requirements for proper operation and maintenance, and mitigation have been included in Part II of the permit. Specific permit conditions have also been included in Part I.C. and I.D. of the Draft 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 Lowell RWWU 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.

Several of the requirements in the Draft Permit are not included in the 2005 Permit, including collection system mapping, and preparation of a collection system operation and maintenance plan. EPA has determined that additional requirements are necessary to ensure the proper operation and maintenance of the collection system and has included schedules for completing these requirements in the Draft Permit.

Because the municipalities of Chelmsford, Dracut, Tewksbury and Tyngsborough, Massachusetts, each own and operate collection systems that discharge to the Lowell RWWU, these municipalities have been included as Co-permittees for the specific permit requirements discussed in the paragraph above. The historical background and legal framework underlying this Co-permittee approach is set forth in Appendix D to this Fact Sheet, EPA Region 1 NPDES Permitting Approach for Publicly Owned Treatment Works that Include Municipal Satellite Sewage Collection Systems.

5.6 Combined Sewer Overflows

Description

The wastewater collection system that conveys flow to the Lowell Regional Wastewater Utility WWTF consists partially of combined sewers that convey both sanitary sewage and stormwater runoff during rain events. During wet weather, the combined flow exceeds the capacity of the interceptor sewers and the wastewater treatment plant, and a portion of the combined flow is discharged to the Merrimack and Concord Rivers as well as to Beaver Brook. CSOs have been identified as causing or contributing to water quality impairments in the segments of the Merrimack and Concord Rivers into which Lowell's CSO discharges occur. See *SuAsCo Watershed 2001 Water Quality Assessment Report, Concord Subwatershed* (MassDEP August 2005) and *Merrimack River Watershed 2004 Water Quality Assessment Report* (MassDEP January 2010).

The system currently has nine CSO outfalls which discharge to the Merrimack River, Beaver Brook, and Concord Rivers (see list of outfalls in Appendix E).

Regulatory Framework

CSOs are point sources subject to NPDES permit requirements for both water-quality based and technology-based requirements but are not subject to the secondary treatment regulations applicable to publicly owned treatment works in accordance with 40 C.F.R. §133.103(a). Section 301(b)(1)(C) of the Clean Water Act of 1977 mandated compliance with water quality standards by July 1, 1977. Technology-based permit limits must be established for best conventional pollutant control technology (BCT) and best available technology economically achievable (BAT) based on best professional judgment (BPJ) in accordance with Section 301(b) and Section 402(a) of the Water Quality Act Amendments of 1987 (WQA). The framework for compliance

with Clean Water Act requirements for CSOs is set forth in EPA's National CSO Control Policy, 59 Fed. Reg. 18688 (1994). It sets the following objectives:

1) To ensure that if the CSO discharges occur, they are only as a result of wet weather;

2) To bring all wet weather CSO discharge points into compliance with the technology-based requirements of the CWA and applicable federal and state water quality standards; and

3) To minimize water quality, aquatic biota, and human health impacts from wet weather flows.

Among the elements established to achieve these objectives, the CSO Policy set forth the minimum BCT/BAT controls (i.e., technology-based limits) that represent the BPJ of the Agency on a consistent, national basis. These are the Nine Minimum Controls (NMCs) defined in the CSO Policy and set forth in Part I.F. of the Draft Permit: 1) proper operation and regular maintenance programs for the sewer system and the combined sewer overflows; 2) maximum use of the collection system for storage; 3) review and modification of the pretreatment programs to assure CSO impacts are minimized; 4) maximization of flow to the POTW for treatment; 5) prohibition of dry weather overflows; 6) control of solid and floatable materials in CSOs; 7) pollution prevention programs which focus on contaminant reduction activities; 8) public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts; and 9) monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

To reflect advances in technologies, the Draft Permit includes more specific public notification implementation level requirements to ensure that the public receives adequate notification of CSO occurrences and CSO impacts. The Draft Permit requires the Permittee to develop a public notification plan to fulfill NMC #8. As part of this plan, notification shall be provided electronically to any interested party, and a posting made on the Permittee's website, of a probable CSO activation. EPA is proposing a requirement in the revised Draft Permit for the Permittee to provide initial notification to the public of a probable CSO discharge no later than four hours after becoming aware of a likely CSO discharge. This notification may be based on modeling estimates of discharge(s) based on rainfall (or other predictive modeling methodologies) rather than on actual CSO discharge measurements.

This initial notification shall be followed by supplemental notification within twenty-four hours of the cessation of a discharge event to confirm whether an actual discharge occurred, and if so, to include information specific to each discharge, including the CSO outfall number and location, the date of the discharge, as well as the time the discharge commenced and ceased.

The CSO Policy also recommended that each community that has a combined sewer system develop and implement a CSO Long-Term Control Plan (CSO LTCP) that will ultimately result in compliance with the requirements of the CWA. The LRWWU submitted a Draft LTCP to address its CSOs in 1991. Subsequent revisions to the 1991 LTCP were submitted in 2001 and 2014. In 2017, EPA issued an Administrative Order on Consent (AOC) which provides a process for the development and implementation of a CSO LTCP within the context of an Integrated Plan (IP) for addressing, among other items, the City's CSOs.

Permit Requirements

In accordance with the National CSO Policy, the Draft Permit contains the following conditions for the CSO discharges:

(i) Dry weather discharges from CSO outfalls are prohibited. Dry weather discharges must be immediately reported to EPA and MassDEP.
(ii) During wet weather, the discharges must not cause any exceedance of water quality standards.
(iii) The Permittee shall meet the technology-based NMCs described above and shall comply with the implementation levels as set forth in Part I.B. of the Draft Permit.
(iv) The Permittee shall review its entire NMC program and revise it as necessary. Documentation of this review and any resultant revisions made to the NMC program shall be submitted to EPA and MassDEP within 6 months of the effective date of the permit. An annual report shall be provided by April 30th of each year which describes any subsequent revisions made to the NMC program and shall also include monitoring results from CSO discharges, and the status of CSO abatement projects.

5.7 Standard Conditions

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

6 Federal Permitting Requirements

6.1 Endangered Species Act

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

Section 7(a)(2) of the ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to ensure that any action it authorizes, funds or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species. The National Marine Fisheries Service (NMFS) administers Section 7 consultations for marine and anadromous species.

The Federal action being considered in this case is EPA's proposed NPDES permit for the Lowell Regional Wastewater Utility Facility, located in Lowell Massachusetts, which discharges from Outfall 035 in to the mainstem of the Merrimack River at latitude 42.64810 N and longitude 71.28753 W, along with nine Combined Sewer Overflow discharges. The Draft Permit is intended to replace the 2005 Permit in governing the Facility's discharge of pollutants. As the

federal agency charged with authorizing the discharge from this Facility, EPA determines potential impacts to federally listed species and initiates consultation with the Services when required under § 7(a)(2) of the ESA.

EPA has reviewed the federal endangered or threatened species of fish, wildlife, and plants in the expected action area of the outfall to determine if EPA's proposed NPDES permit could potentially impact any such listed species. For protected species under the jurisdiction of the USFWS, one listed endangered species, the northern long-eared bat (*Myotis septentrionalis*), was identified as potentially occurring in the action area of Merrimack River.[13] According to the USFWS, the northern long-eared bat is found in "winter – mines and caves, summer – wide variety of forested habitats. This species is not aquatic, so the discharge will have no direct effect on this mammal. Further, the permit action is also expected to have no indirect effect on the species because it is not expected to impact insects, the primary prey of the northern long-eared bat. Therefore, the proposed permit action is deemed to have no impact on this listed species.

For protected species under the jurisdiction of NMFS, subadult and adult life stages of Atlantic sturgeon (*Acipenser oxyrinchus*), as well as adult shortnose sturgeon (*Acipenser brevirostrom*), are present in the Merrimack River. Their upstream passage is limited by the Essex Dam (Great Stone Dam) in Lawrence, Massachusetts. In addition, areas of the Merrimack River downstream of the Essex Dam have been designated as critical habitat for Atlantic sturgeon.[14]

The Essex Dam is approximately 8.5 river miles downstream from the Facility discharge. In addition, the Facility discharges via a diffuser near the middle of the river and has a calculated dilution factor of 17.8.

Because of the dilution and great distance between the action area of the discharge and the location of the protected sturgeon species and the Atlantic sturgeon critical habitat, EPA has made the determination that it is highly unlikely that the protected species would be present in the vicinity of this discharge and the action area of the outfall. In addition, the critical habitat will not come in contact with the discharge. Therefore, the proposed permit action will have no impact on these listed anadromous fish species or the critical habitat.

Based on the above review, EPA finds that adoption of the proposed permit will have no effect on any threatened or endangered species or their designated critical habitat. Therefore, EPA has judged that consultation pursuant to Section 7 of the ESA is not required.

Reinitiation of consultation will take place: (a) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) if the identified action is subsequently modified in a manner

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[13]See §7 resources for USFWS at https://ecos.fws.gov/ipac/.

[14] See §7 resources for NMFS at https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27

that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) if a new species is listed or critical habitat is designated that may be affected by the identified action.

6.2 Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (*see* 16 U.S.C. § 1801 et seq., 1998), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat". *See* 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". *See* 16 U.S.C. § 1802(10). "Adverse impact" means any impact that reduces the quality and/or quantity of EFH, 50 C.F.R. § 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. EFH is only designated for fish species for which federal Fisheries Management Plans exist. *See* 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. . In some cases, a narrative identifies rivers and other waterways that should be considered EFH due to present or historic use by federally managed species.[15]

The federal action being considered in this case is EPA's proposed National Pollutant Discharge Elimination System (NPDES) permit reissuance for the Lowell Regional Wastewater Utility (Lowell RWWU) in Lowell, Massachusetts. The Draft Permit is intended to replace the 2005 Permit in governing the Facility's discharge of pollutants.

The Facility discharges to the Merrimack River Segment MA84A-03. Only Atlantic salmon is believed to be present within the EFH Area, which encompasses the existing discharge site. No "habitat areas of particular concern", as defined under §600.815(a)(9) of the Magnuson-Stevens Act, have been designated for this site. Although EFH has been designated for this general location, EPA has concluded that this activity is not likely to adversely affect EFH or its associated species for the following reasons:

- This permit action does not constitute a new source of pollutants. It is the reissuance of an existing NPDES permit;
- The Facility withdraws no water from the Merrimack River, so no life stages of Atlantic salmon are vulnerable to impingement or entrainment from this facility;
- The flow from the Facility is limited by the Draft Permit to 32 MGD, as a monthly average;
- Effluent receives secondary treatment with extended aeration process;
- Effluent is discharged into the Merrimack River via a diffuser with a dilution factor of 17.8;

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

- The Draft Permit proposes to limit CBOD, TSS, pH, total residual chlorine, *E. coli*, total aluminum, total lead, and total phosphorus;
- The Permittee is required to minimize the use of chlorine while maintaining adequate bacterial control;
- Acute toxicity tests will be continued four times a year. Present toxicity test results are in compliance with the permit limits;
- The Draft Permit prohibits the discharge of pollutants or combination of pollutants in toxic amounts;
- The effluent limitations and conditions in the Draft Permit were developed to be protective of all aquatic life; and
- The Draft Permit prohibits violations of the state water quality standards.

EPA believes that the conditions and limitations contained within the Draft Permit adequately protect all aquatic life, including Atlantic salmon, the designated EFH species in the receiving water, and that further mitigation is not warranted. Should adverse impacts to EFH be detected as a result of this permit action, or if new information is received that changes the basis for EPA's conclusions, NMFS will be contacted and an EFH consultation will be reinitiated.

In addition to this Fact Sheet and the Draft Permit, information to support EPA's finding is included in a letter under separate cover that will be sent to the NMFS Habitat Division during the public comment period.

7 Public Comments, Hearing Requests and Permit Appeals

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Meridith Finegan, U.S. EPA, Water Division**,** Municipal Permits Section, 5 Post Office Square, Suite 100 (06-1), Boston, Massachusetts 02109-3912 or via email to Finegan.Meridith@epa.gov; and Claire Golden, MassDEP, 205 B Lowell Street, Wilmington, MA 01867 or via email to claire.golden@mass.gov.

Any person, prior to the close of the public comment period, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the Draft Permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision, forward a copy of the final decision to the applicant, and provide a copy or notice of availability of the final decision to each person who has submitted written comments or requested notice. Within 30 days following the notice of the Final Permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 C.F.R. § 124.19 and/or submit a request for an adjudicatory hearing to MassDEP's Office of Appeals and Dispute Resolution consistent

with 310 CMR 1.00.

8 EPA and MassDEP Contacts

The administrative record on which this Draft Permit is based may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Meridith Finegan
EPA New England, Region 1
5 Post Office Square, Suite-100 (06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1533, FAX: (617)918-0533
Email: Finegan.Meridith@epa.gov

Claire Golden
Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
24 B Lowell Street
Wilmington, MA 01867
Telephone: (978) 694-3244
Email: claire.golden@mass.gov

06/07/2019
Date

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

Figure 1: Lowell Regional Wastewater Utility Map

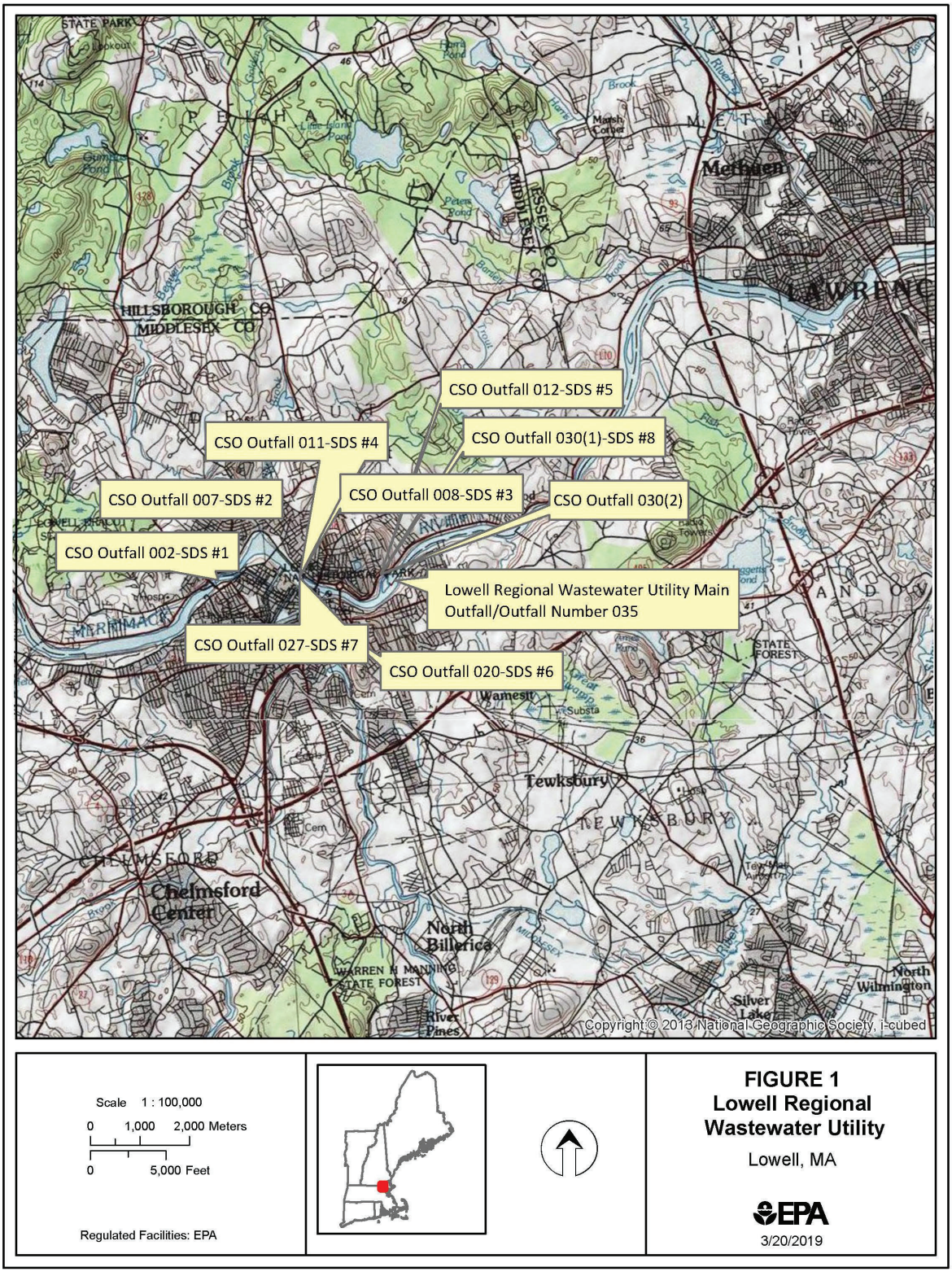

Figure 1: Flow diagram

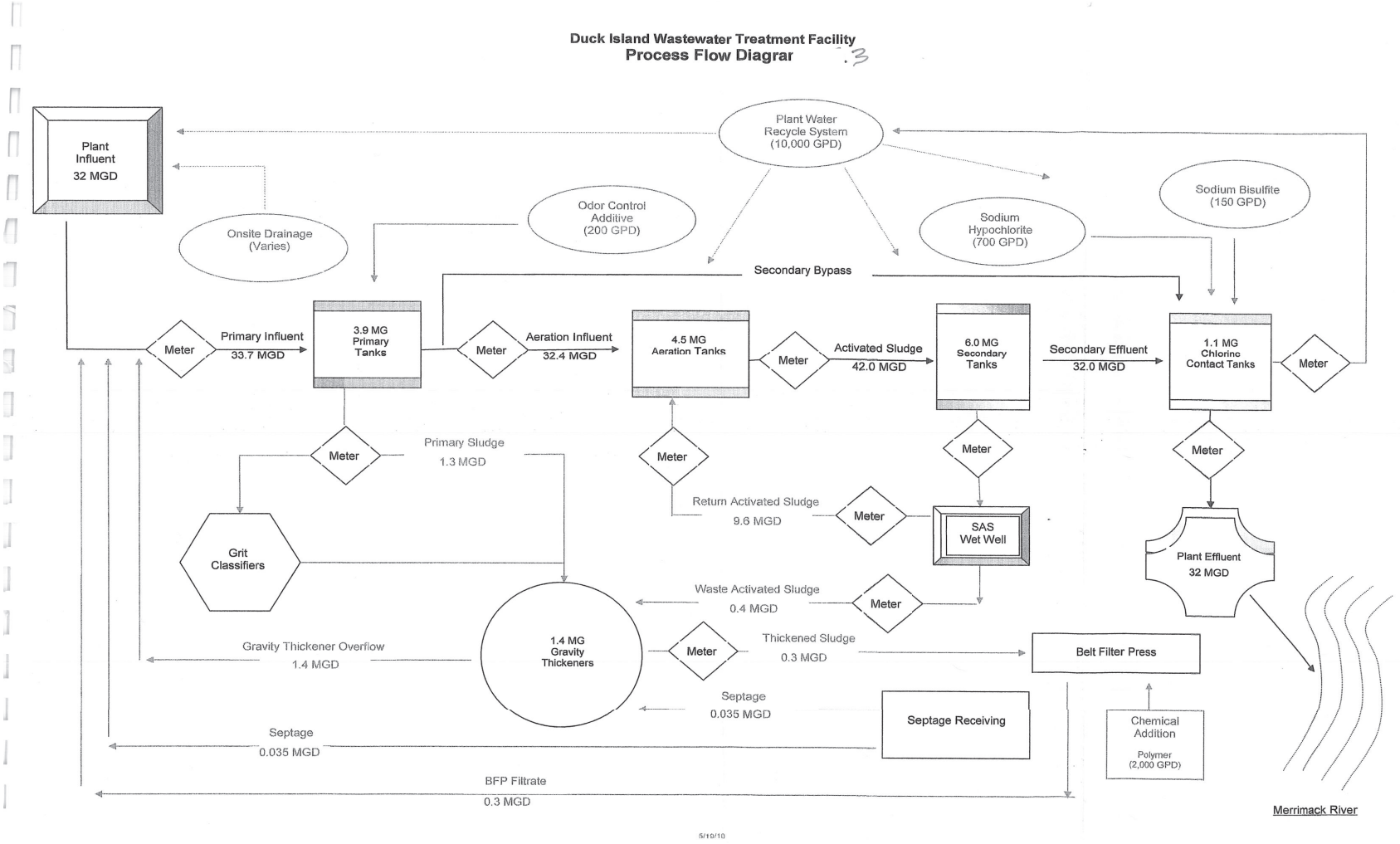

Exhibit 3
AR A.15

APPENDIX A

DISCHARGE MONITORING REPORT SUMMARY

Outfall 035

Parameter	Flow	Flow	CBOD5	CBOD5	CBOD5	CBOD5	TSS
	Annual Rolling Ave	Daily Max	Monthly Ave	Monthly Ave	Weekly Ave	Daily Max	Monthly Ave
Units	MGD	MGD	lb/d	mg/L	mg/L	mg/L	lb/d
Effluent Limit	32	Report	6672	25	40	50	8006
Minimum	21.01	20.7	417	2.9	3.28	5.6	635
Maximum	33.4	81.48	5241	15.1	34.72	55	9948
Average	25	47.8	1610	6.63	9.95	18	2360
No. of Violations	2	N/A	0	0	0	1	2
1/31/2014	23.84	54.51	1307	5.6	6.38	14.6	2466
2/28/2014	23.7	38.66	756	4.1	5.16	12	1397
3/31/2014	23.34	76.26	4156	15.1	34.72	50	9948
4/30/2014	24.32	59.98	2978	8.2	18.38	19.5	3108
5/31/2014	24.7	51.74	1010	4.2	6.06	11.5	1597
6/30/2014	23.74	36.22	768	4.3	5.96	12	1315
7/31/2014	23.36	44.92	786	4	4.2	11.2	772
8/31/2014	23.18	48.77	735	3.6	5.64	15.3	1008
9/30/2014	23	26.38	417	2.9	3.28	5.6	635
10/31/2014	23.32	73.23	985	4.3	6.56	15.4	1674
11/30/2014	23.73	49.85	1096	5	7.36	18.9	1367
12/31/2014	24.92	61.48	1922	5.9	8.84	18	2757
1/31/2015	24.85	51.91	1356	5.4	6.72	13.2	1746
2/28/2015	24.56	20.7	854	5.4	5.74	10.6	823
3/31/2015	24.49	46.1	1456	6	6.92	14	2164
4/30/2015	24.09	47.42	1858	6.4	7.96	18.8	2582
5/31/2015	23.59	30.1	747	4.1	5.62	8.2	1142
6/30/2015	23.9	53.73	1109	4.1	6.22	10.2	1922
7/31/2015	23.91	36.4	658	3.6	5.08	9.2	794
8/31/2015	23.83	24.92	717	4.7	5.76	9.3	1017
9/30/2015	23.92	50.52	2121	12.9	24.4	55	3630
10/31/2015	23.78	38.59	1322	8	17.84	16.6	1973
11/30/2015	23.38	36.34	1059	7.2	8.5	13.5	1359
12/31/2015	22.23	37.84	1132	6.5	8.18	10.8	1512
1/31/2016	22.09	48.63	1378	6.5	7.98	17.3	1780
2/29/2016	22.63	40.58	3114	13.4	31.62	47	3029
3/31/2016	22.53	42.88	1390	5.7	9.22	18	1649
4/30/2016	21.8	45.74	2066	9.1	18.1	27.5	2058
5/31/2016	21.71	27.95	979	5.3	5.58	9.3	1462
6/30/2016	21.22	34.42	1017	5.9	6.98	13	1434
7/31/2016	21.08	26.51	666	4.6	7.32	7.7	695
8/31/2016	21.07	32.82	1118	6.7	8.56	13.8	1532
9/30/2016	21.01	37.04	957	6.1	6.78	13.4	1282
10/31/2016	21.2	44.39	1072	6.1	7.48	15.1	1225

Exhibit 3
AR A.15

APPENDIX A

DISCHARGE MONITORING REPORT SUMMARY

Outfall 035

Parameter	Flow	Flow	CBOD5	CBOD5	CBOD5	CBOD5	TSS
	Annual Rolling Ave	Daily Max	Monthly Ave	Monthly Ave	Weekly Ave	Daily Max	Monthly Ave
Units	MGD	MGD	lb/d	mg/L	mg/L	mg/L	lb/d
Effluent Limit	32	Report	6672	25	40	50	8006
11/30/2016	21.39	35.73	1685	8.6	10.08	21.6	2309
12/31/2016	21.54	42.92	1799	8.9	13.14	16.5	2684
1/31/2017	22.1	43.97	1849	6.9	7.68	18.6	2301
2/28/2017	22.37	38.61	1530	6.3	6.98	9	2246
3/31/2017	22.51	44.64	2777	11.5	23.28	40.1	2819
4/30/2017	24.04	70.95	4186	10.4	16.08	21.6	4711
5/31/2017	24.74	49.15	1542	6	7.02	12.9	1956
6/30/2017	25.63	63.71	2111	6.3	11.68	34.7	1940
7/31/2017	26.23	43.11	1094	4.8	6.32	17.6	1868
8/31/2017	26.74	32.48	935	4.6	5.38	9.9	956
9/30/2017	27.28	42.09	1357	6.1	9.14	16	1374
10/31/2017	27.6	60.77	1617	6.7	9.14	13	1806
11/30/2017	28.11	38.19	1553	7.1	8.02	13	2138
12/31/2017	28.21	35.64	1437	7.1	9.66	18	2233
1/31/2018	28.21	62.45	1313	5.7	8.92	15	1866
2/28/2018	28.78	78.44	1444	4.7	6.82	10.2	3417
3/31/2018	29.77	71.52	1953	5.9	6.4	11.4	3702
4/30/2018	29.69	80.46	5241	12.8	21.38	39.7	**8487**
5/31/2018	29.75	42.74	2554	9.3	15.2	24.3	4877
6/30/2018	29.28	48.18	1668	8.2	11.98	21.5	4223
7/31/2018	29.23	51.35	1474	6.5	9.54	18.9	3230
8/31/2018	29.62	46.35	1695	6.3	10.16	22.8	2488
9/30/2018	30.1	67.41	2028	7.3	8.84	26.6	3761
10/31/2018	30.43	46.9	1478	6	6.96	15	2022
11/30/2018	**32.4**	81.48	3351	7.3	8.86	19.7	4733
12/31/2018	**33.4**	68.96	1742	5.4	7.22	17.6	2577

Exhibit 3
AR A.15

APPENDIX A

DISCHARGE MONITORING REPORT SUMMARY

Outfall 035

Parameter	TSS	TSS	TSS	pH	pH	Fecal Coliform	Fecal Coliform
	Monthly Ave	Weekly Ave	Daily Max	Minimum	Maximum	Monthly Geometric Mean	Daily Max
Units	mg/L	mg/L	mg/L	SU	SU	#/100mL	#/100mL
Effluent Limit	30	45	50	6	8.3	200	400
Minimum	3.7	4.94	6.7	5.9	6.7	1	1
Maximum	33.6	74.76	136	6.8	7.3	12	390
Average	9.48	14.6	28.2	6.45	7.06	3.92	81.9
No. of Violations	1	2	4	1	0	0	0
1/31/2014	10.5	17	35	6.8	7.1	1	1
2/28/2014	7.5	9.14	30	6.7	7.2	1	6
3/31/2014	33.6	74.76	136	6.7	7.1	2	47
4/30/2014	8.9	32.4	20	6.7	7.1	4	360
5/31/2014	6.6	7.44	17.9	6.3	7	2	16
6/30/2014	7.4	11.18	21.6	6.5	7	1	6
7/31/2014	3.7	5.18	13.7	6.5	7	3	82
8/31/2014	5	7.08	21.2	6.3	7.1	3	225
9/30/2014	4.4	4.94	9.1	6.6	7	3	27
10/31/2014	7.3	9.56	25.4	6.5	7	7	159
11/30/2014	6.4	9.24	23.4	6.4	7.1	2	53
12/31/2014	8.4	13.22	21.5	6.5	7	2	35
1/31/2015	6.7	9.28	21.6	6.6	7	1	5
2/28/2015	5.2	5.52	7.1	6.6	7.1	1	1
3/31/2015	8.6	10.28	23.8	6.5	7.1	1	6
4/30/2015	9.1	10.58	19.8	6.6	7	1	3
5/31/2015	6	9.34	19.4	6.4	7.1	1	9
6/30/2015	6.9	11.34	19.7	6.3	6.9	2	49
7/31/2015	4.2	8.7	12.1	6.3	7	2	48
8/31/2015	6.6	8.14	12.7	6.3	7	2	32
9/30/2015	22.2	54	111	6.5	7.2	7	119
10/31/2015	11.8	22.44	21	6.4	7.1	11	355
11/30/2015	9.3	14.48	20.6	6.4	7.1	3	37
12/31/2015	8.4	9.34	15.1	6.3	7	2	13
1/31/2016	8.1	11.92	27	6.2	7.2	1	2
2/29/2016	13	27.5	40.5	6.6	7.2	2	350
3/31/2016	6.8	8.98	18	6.6	7.2	2	37
4/30/2016	8.9	16.9	27.8	6.5	7.1	6	35
5/31/2016	7.9	8.52	18.2	6.3	7	8	36
6/30/2016	8.1	13.12	24.4	6.6	7	2	22
7/31/2016	4.8	8.82	6.7	6.5	7.1	4	37
8/31/2016	9	12.64	21.4	6.5	7	9	104
9/30/2016	7.8	10.52	23.8	6.5	7.3	8	150
10/31/2016	7.1	8.24	15.8	6.6	7.1	7	109

Exhibit 3
AR A.15

APPENDIX A

DISCHARGE MONITORING REPORT SUMMARY

Outfall 035

Parameter	TSS	TSS	TSS	pH	pH	Fecal Coliform	Fecal Coliform
	Monthly Ave	Weekly Ave	Daily Max	Minimum	Maximum	Monthly Geometric Mean	Daily Max
Units	mg/L	mg/L	mg/L	SU	SU	#/100mL	#/100mL
Effluent Limit	**30**	**45**	**50**	**6**	**8.3**	**200**	**400**
11/30/2016	12.3	11.94	25.8	6.4	7	4	29
12/31/2016	13.2	18.74	23	6.5	7.1	2	7
1/31/2017	8.6	10.4	20.2	6.6	7	2	16
2/28/2017	9.2	10.84	14.2	6.5	6.9	1	8
3/31/2017	11.3	17.44	28.4	6.6	7.1	1	23
4/30/2017	11.4	20.76	25.6	6.7	6.9	5	390
5/31/2017	7.5	11.26	23	6.4	7.1	2	18
6/30/2017	6.1	10.32	24.4	6.4	7	3	85
7/31/2017	7.7	12.64	46.5	6.3	7	3	68
8/31/2017	4.6	5.82	12	6.3	7	3	70
9/30/2017	6	9.1	19	6.6	7.1	7	119
10/31/2017	6.7	8.86	23	6.4	7.1	11	170
11/30/2017	9.9	11.44	14.6	6.5	7.1	3	43
12/31/2017	11.1	13.64	16.8	6.6	7.2	2	40
1/31/2018	7.5	12.24	20.1	6.5	7.1	2	9
2/28/2018	9	12.92	41	6.6	7.1	1	3
3/31/2018	11.2	12.74	22.7	6.4	7	2	161
4/30/2018	20.4	32.4	**89**	6.4	6.8	5	225
5/31/2018	17.6	27.4	48.6	6.3	7	3	13
6/30/2018	19.7	25.24	46	6.4	7.1	6	42
7/31/2018	12.3	17.04	**62.5**	6.4	7.1	8	108
8/31/2018	9.8	12.16	23	**5.9**	7.1	9	92
9/30/2018	13	14.48	44	6.2	7.3	12	300
10/31/2018	8.1	11.04	23	6	7.2	11	25
11/30/2018	10.4	11.5	26.4	6.4	7	11	265
12/31/2018	8	10.94	24	6.2	6.7	2	7

Exhibit 3
AR A.15

APPENDIX A

DISCHARGE MONITORING REPORT SUMMARY

Outfall 035

Parameter	TRC	TRC	TRC	TRC	DO	TP
	Monthly Ave	Daily Max	Continuous - Monthly Ave	Continuous - Daily Max	Monthly Ave	Daily Max
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Effluent Limit	0.21	0.37	Report	Report	Report	Report
Minimum	0	0	21.01	20.7	7.3	0.7
Maximum	0.08	0.34	33.4	81.48	9.7	3.6
Average	0.0228	0.118	25	47.8	7.89	2.16
No. of Violations	0	0	N/A	N/A	N/A	N/A
1/31/2014	0	0	0.03	0.18		1
2/28/2014	0	0	0.02	0.04		2.4
3/31/2014	0.01	0.1	0.01	1.74		1
4/30/2014	0	0	0	0.44	8.3	1.4
5/31/2014	0.01	0.15	0.001	0.69	8.3	1.9
6/30/2014	0.01	0.11	0.014	0.27	7.8	2.7
7/31/2014	0	0	0.03	1.37	7.6	2.1
8/31/2014	0.01	0.12	0.003	0.28	7.6	2.1
9/30/2014	0	0.1	0.002	0.71	7.7	2.6
10/31/2014	0.01	0.14	0.007	0.31	8.1	2.2
11/30/2014	0	0.03	0	0.26		1.4
12/31/2014	0	0.01	0.003	0.88		0.7
1/31/2015	0	0	0.001	0.08		1.8
2/28/2015	0.01	0.15	0.011	0.13		2.2
3/31/2015	0	0	0.002	0.09		1.4
4/30/2015	0	0.04	0.002	0.19	8.3	0.9
5/31/2015	0	0.1	0.002	0.01	7.8	1.7
6/30/2015	0	0.02	0.007	0.26	7.8	2.6
7/31/2015	0.01	0.23	0.002	0.18	7.7	3
8/31/2015	0	0.1	0.006	0.41	7.5	3.4
9/30/2015	0.06	0.31	0.002	0.43	7.5	3.4
10/31/2015	0.07	0.19	0	0.1	7.9	2.9
11/30/2015	0.05	0.15	0.001	0.24		2.7
12/31/2015	0.03	0.12	0	0.15		2.6
1/31/2016	0.04	0.17	0.01	2		2.3
2/29/2016	0.04	0.16	0.001	0.25		2.6
3/31/2016	0.03	0.18	0	0.34		2.6
4/30/2016	0.03	0.1	0	0.17	8.1	2.3
5/31/2016	0.02	0.1	0.002	0.17	7.9	2.2
6/30/2016	0.08	0.24	0.007	0.59	7.5	2.2
7/31/2016	0.06	0.34	0.003	0.4	7.3	3
8/31/2016	0.06	0.12	0.001	0.37	7.5	2.1
9/30/2016	0.05	0.16	0.005	2	7.5	3.5
10/31/2016	0.07	0.23	0.005	2	7.9	2.3

Exhibit 3
AR A.15

APPENDIX A

DISCHARGE MONITORING REPORT SUMMARY

Outfall 035

Parameter	TRC	TRC	TRC	TRC	DO	TP
	Monthly Ave	Daily Max	Continuous - Monthly Ave	Continuous - Daily Max	Monthly Ave	Daily Max
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Effluent Limit	0.21	0.37	Report	Report	Report	Report
11/30/2016	0.03	0.08	0.005	0.35		2
12/31/2016	0.04	0.32	0.015	0.91		2.7
1/31/2017	0.02	0.06	0.008	0.44		1.9
2/28/2017	0.02	0.04	0.006	0.51		2
3/31/2017	0.02	0.05	0.007	0.34		2.5
4/30/2017	0.02	0.12	0.008	1.07	8.3	1.5
5/31/2017	0.02	0.08	0.006	2	8	2.3
6/30/2017	0.02	0.06	0.003	0.44	7.7	1.6
7/31/2017	0.02	0.08	0.018	0.24	7.4	1.8
8/31/2017	0.03	0.14	0.016	0.75	7.4	2.1
9/30/2017	0.03	0.13	0.001	0.3	7.4	2.2
10/31/2017	0.01	0.06	0.005	0.41	7.5	3.4
11/30/2017	0.04	0.26	0.004	0.54		2.7
12/31/2017	0.02	0.19	0.004	2		2.3
1/31/2018	0.02	0.07	0.004	1.19		2.2
2/28/2018	0.02	0.06	0.004	1.58		1.8
3/31/2018	0.02	0.07	0.002	0.56		1.2
4/30/2018	0.02	0.18	0.006	1.88	8.4	1.1
5/31/2018	0.03	0.13	0	0.13	8.1	1.2
6/30/2018	0.02	0.1	0.003	0.06	8.1	3.6
7/31/2018	0.02	0.06	0.001	0.27	7.9	1.8
8/31/2018	0.03	0.13	0.001	0.28	8	2.8
9/30/2018	0.03	0.22	0.005	2	8.8	1.8
10/31/2018	0.02	0.25	0.021	0.15	9.7	2.4
11/30/2018	0.02	0.07	0.028	1.62		1.9
12/31/2018	0.02	0.09	0.014	0.08		1.5

APPENDIX A

Exhibit 3
AR A.15

DISCHARGE MONITORING REPORT SUMMARY

Outfall 035

Parameter	Ammonia	Nitrite+Nitrate	TKN
	Daily Max	Daily Max	Daily Max
Units	mg/L	mg/L	mg/L
Effluent Limit	Report	Report	Report
Minimum	0.1	0.16	3.7
Maximum	19.8	8.81	30.1
Average	9.45	3.47	13.5
No. of Violations	N/A	N/A	N/A
1/31/2014	15.8	3.62	20.1
4/30/2014	7.1	0.53	11.4
7/31/2014	3.8	1.71	3.9
10/31/2014	11.6	6.02	19.9
1/31/2015	10	2.04	16.7
4/30/2015	10.6	0.32	8.5
7/31/2015	3	1.71	4.6
10/31/2015	15.3	5.74	24.2
1/31/2016	4.8	8.81	8.8
4/30/2016	17.7	0.9	30.1
7/31/2016	6.2	5.81	8.7
10/31/2016	5.7	8.59	8.8
1/31/2017	14.7	3.14	15.5
4/30/2017	8.5	2.1	16.3
7/31/2017	3.7	4.26	3.7
10/31/2017	17.5	4.5	17.5
1/31/2018	19.8	2.14	19.8
4/30/2018	7.9	2.46	8.4
7/31/2018	0.1	0.16	18.2
10/31/2018	5.2	4.78	5.2

APPENDIX A

Exhibit 3
AR A.15

DISCHARGE MONITORING REPORT SUMMARY

WET - Effluent Data

Parameter	LC50 Acute Ceriodaphnia	Noel Static 7Day Chronic Ceriodaphnia	Ammonia	pH	Hardness	Aluminum	Cadmium	Copper
	Daily Min	Daily Min	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	%	%	mg/L	S.U.	mg/L	mg/L	mg/L	mg/L
Effluent Limit	100	Report	Report	Report	Report	Report	Report	Report
Minimum	**100**	**6.25**	**2.9**	**6.8**	**44.8**	**0**	**0**	**0**
Maximum	**100**	**100**	**24**	**7.1**	**115**	**0.19**	**0.0006**	**0.017**
Average	**100**	**85.6**	**10.9**	**6.98**	**78.6**	**0.0722**	**0.0000387**	**0.00919**
No. of Violations	**0**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
1/31/2014	100	100	24			0.03	0	0.013
4/30/2014	100	100						
7/31/2014	100	6.25	3.5			0.02	0	0.008
10/31/2014	100	50	10.3			0.05	0	0.007
1/31/2015	100	100	9.4			0.117	0.0006	0.009
4/30/2015	100	100	11.4			0.074	0	0.009
7/31/2015	100	100	2.9			0.05	0	0.009
10/31/2015	100	100	15.3			0.05	0	0.017
1/31/2016	100	100	4.7			0.19	0	0.011
4/30/2016	100	100	14.4			0.1	0	0.014
7/31/2016	100	100	9.4		53.9	0.07	0	0.007
10/31/2016	100	100	7		72.5	0.12	0	0.013
1/31/2017	100	100	16.6		44.8	0.05	0	0.007
4/30/2017	100	100	8.74			0.132	0.000136	0.00963
7/31/2017	100	100	3.6	6.9	72.9	0.081	0	0.009
10/31/2017	100	6.25	17.6	7.1	73.8	0.052	0	0.005
1/31/2018	100	50	20.4	7.1	84.4	0	0	0.01
4/30/2018	100	100	15.7	6.8	115	0.099	0	0.007
7/31/2018	100	100	6.2	7.1	106	0.046	0	0.01
10/31/2018	100	100	5.5	6.9	84.5	0.041	0	0

APPENDIX A

Exhibit 3
AR A.15

DISCHARGE MONITORING REPORT SUMMARY

WET - Effluent Data

Parameter	Lead	Nickel	Zinc
	Daily Max	Daily Max	Daily Max
Units	mg/L	mg/L	mg/L
Effluent Limit	Report	Report	Report
Minimum	**0**	**0**	**0.04**
Maximum	**0.0027**	**0.005**	**0.095**
Average	**0.000869**	**0.00168**	**0.0648**
No. of Violations	N/A	N/A	N/A
1/31/2014	0.002	0	0.04
4/30/2014			
7/31/2014	0	0	0.051
10/31/2014	0.002	0	0.087
1/31/2015	0.0027	0	0.069
4/30/2015	0	0.005	0.07
7/31/2015	0.001	0	0.052
10/31/2015	0.002	0.003	0.074
1/31/2016	0.0018	0	0.078
4/30/2016	0.0018	0	0.068
7/31/2016	0	0	0.04
10/31/2016	0	0	0.054
1/31/2017	0	0.002	0.095
4/30/2017	0.000806	0.004	0.0705
7/31/2017	0	0.003	0.059
10/31/2017	0.0003	0.002	0.053
1/31/2018	0	0.002	0.083
4/30/2018	0.0008	0.004	0.076
7/31/2018	0.0009	0.004	0.065
10/31/2018	0.0004	0.003	0.046

APPENDIX A

Exhibit 3
AR A.15

DISCHARGE MONITORING REPORT SUMMARY

WET - Ambient Data

Parameter	Ammonia	pH	Hardness	Aluminum	Cadmium	Copper	Lead	Nickel	Zinc
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	mg/L	S.U.	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Effluent Limit	Report	Report	Report	Report	Report	Report	Report	Report	Report
Minimum	**0**	**6.5**	**15.1**	**0**	**0**	**0**	**0**	**0**	**0**
Maximum	**0.5**	**7.2**	**88.2**	**0.365**	**0**	**0.01**	**0.003**	**0.002**	**0.08**
Median	**0.15**	**6.9**	**22.6**	**0.14**	**0**	**0**	**0.000411**	**0**	**0.0109**
1/31/2014	0.500			0.075	0.000	0.010	0.001	0.000	0.007
4/30/2014									
7/31/2014	0.000			0.150	0.000	0.000	0.003	0.000	0.000
10/31/2014	0.100			0.050	0.000	0.000	0.002	0.000	0.008
1/31/2015	0.100			0.080	0.000	0.000	0.001	0.000	0.006
4/30/2015	0.200			0.194	0.000	0.005	0.000	0.000	0.008
7/31/2015	0.000			0.170	0.000	0.003	0.003	0.000	0.008
10/31/2015	0.000			0.240	0.000	0.000	0.000	0.000	0.015
1/31/2016	0.200			0.090	0.000	0.000	0.000	0.000	0.017
4/30/2016	0.100			0.150	0.000	0.000	0.001	0.000	0.080
7/31/2016	0.000		25.7	0.130	0.000	0.007	0.000	0.000	0.024
10/31/2016	0.400		88.2	0.130	0.000	0.006	0.000	0.000	0.000
1/31/2017	0.200		15.1	0.270	0.000	0.000	0.000	0.002	0.018
4/30/2017	0.000			0.365	0.000	0.000	0.001	0.000	0.013
7/31/2017	0.200	7.2	16.8	0.344	0.000	0.005	0.003	0.002	0.024
10/31/2017	0.200	6.9	25.9	0.048	0.000	0.000	0.000	0.000	0.009
1/31/2018	0.500	6.5	22.6	0.000	0.000	0.000	0.000	0.000	0.016
4/30/2018	0.400	6.8	18.5	0.149	0.000	0.000	0.000	0.000	0.009
7/31/2018	0.000	6.9	22.5	0.131	0.000	0.000	0.001	0.000	0.013
10/31/2018	0.100	6.7	20.1	0.148	0.000	0.000	0.001	0.000	0.000

APPENDIX B
METALS REASONABLE POTENTIAL AND LIMITS CALCULATIONS

Metal	Q_s	C_s [1]	Q_d	C_d [2]		Q_r	C_r		Criteria		Acute Reasonable Potential	Chronic Reasonable Potential	Limits	
	cfs	µg/l	cfs	Acute (µg/l)	Chronic (µg/l)	cfs	Acute (µg/l)	Chronic (µg/l)	Acute (µg/l)	Chronic (µg/l)	C_d & C_r > Criteria	C_d & C_r > Criteria	Acute (µg/l)	Chronic (µg/l)
Aluminum	832.00	35.0	49.54	164.6	164.6	881.54	42.28	42.3	750	87	N	N	N/A	N/A
Cadmium		0.0		0.3	0.3		0.02	0.02	0.53	0.10	N	N	N/A	N/A
Copper		0.4		15.1	15.1		1.23	1.23	3.85	2.89	N	N	N/A	N/A
Lead		0.30		3.0	3.0		0.45	0.45	14.25	0.56	N	N	N/A	N/A
Nickel		0.0		4.7	4.7		0.27	0.27	147.09	16.35	N	N	N/A	N/A
Zinc		8.0		95.2	95.2		12.90	12.9	37.50	37.50	N	N	N/A	N/A

[1]Median concentration for the receiving water upstream of the facility's discharge during the review period.

[2]Values represent the 95th percentile (for $n \geq 10$) or maximum (for $n < 10$) concentrations from the DMR data and/or WET testing data during the review period (see Attachments A & C). If the metal already has a limit (for either acute or chronic conditions), the value represents the existing limit.

Appendix C
Statistical Approach for Effluent Data (N ≥ 10)

EPA bases its determination of "reasonable potential" on a characterization of the upper bound of expected effluent concentrations based on a statistical analysis of the available monitoring data. As noted in the *Technical Support Document for Water Quality Based Toxics Control* (EPA 1991) ("TSD"), "[a]ll monitoring data, including results for concentrations of individual chemicals, have some degree of uncertainty associated with them. The more limited the amount of test data available, the larger the uncertainty." Thus, with a limited data set, the maximum concentration that has been found in the samples may not reflect the full range of effluent concentration.

To account for this, EPA has developed a statistical approach to characterizing effluent variability when the monitoring dataset includes 10 or more samples.[1] As "experience has shown that daily pollutant discharges are generally lognormally distributed," *TSD* at App. E, EPA uses a lognormal distribution to model the shape of the observed data, unless analysis indicates a different distributional model provides a better fit to the data. The model parameters (mean and variance) are derived from the monitoring data. The model parameter μ is the mean of the natural logs of the monitoring data values, while σ is the standard deviation of the natural logs of the monitoring data values.

The lognormal distribution generally provides a good fit to environmental data because it is bounded on the lower end (i.e. you cannot have pollutant concentrations less than zero) and is positively skewed. It also has the practical benefit that if an original lognormal data set X is logarithmically transformed (i.e. Y = ln[X]) the resulting variable Y will be normally distributed. Then the upper percentile expected values of X can be calculated using the z-score of the standardized normal distribution (i.e. the normal distribution with mean = 0 and variance = 1), a common and relatively simple statistical calculation. The p^{th} percentile of X is estimated by

$$X_p = \exp(\mu_y + z_p \times \sigma_y),$$

where μ_y = mean of Y
σ_y = standard deviation of Y
Y = ln[X]
z_p = the z-score for percentile "p"

For the 95^{th} percentile, $z_{95} = 1.645$, so that

$$X_{95} = \exp(\mu_y + 1.645 \times \sigma_y)$$

The 95^{th} percentile value is used to determine whether a discharge has a reasonable potential to cause or contribute to an exceedance of a water quality standard. The combination of the upper bound effluent concentration with dilution in the receiving water is calculated to determine whether the water quality criteria will be exceeded.

Datasets including non-detect values

The *TSD* also includes a procedure for determine such percentiles when the dataset includes non-detect results, based on a delta-lognormal distribution. In the delta-lognormal procedures, non-detect values are weighted in proportion to their occurrence in the data. The values above the detection limit are assumed to be lognormally distributed values.

[1] A different statistical approach is applied where the monitoring data set includes less than 10 samples.

The statistical derivation of the delta-lognormal upper bounds is quite complex and is set forth in the TSD at Appendix E. Calculation of the 95th percentile of the distribution, however, involves a relatively straightforward adjustment of the equations given above for the lognormal distribution, as follows.

For the delta-lognormal, the pth percentile of X, referred to here as X_p^*, is given by

$$X_p^* = \exp(\mu_y^* + z_p^* \times \sigma_y^*),$$

where μ_y^*= mean of Y values for data points above the detection limit;
σ_y^*= standard deviation of Y for data points above the detection limit;
$Y = \ln[X^*]$;
X^*= monitoring data above detection limit; and
z_p^* = an adjusted z score that is given by the equation:

$$z_p^* = \text{z-score}[(p - \delta)/(1 - \delta)]$$

where δ is the proportion of non-detects in the monitoring dataset.

k = total number of dataset
r = number of non-detect values in the dataset
$\delta = r/k$

For the 95th percentile, this takes the form of $z_p^* = \text{z-score}[(.95 - \delta)/(1 - \delta)]$. The resulting values of z_p^* for various values of δ is set forth in the table below; the calculation is easily performed in excel or other spreadsheet programs.

Example calculations of z_p^* for 95th percentile

δ	$(0.95 - \delta)/(1 - \delta)$	z_p^*
0	0.95	1.645
0.1	0.94	1.593
0.3	0.93	1.465
0.5	0.90	1.282
0.7	0.83	0.967

Appendix D

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]

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[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

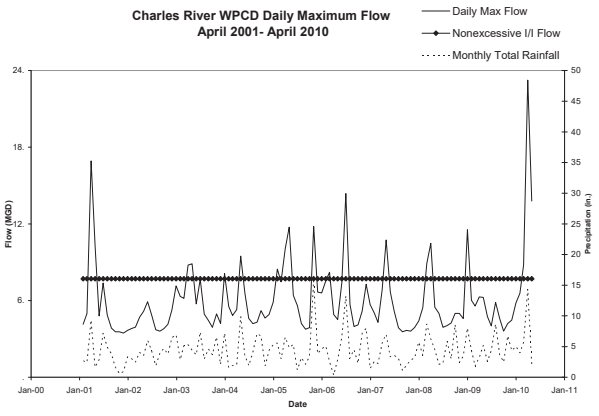
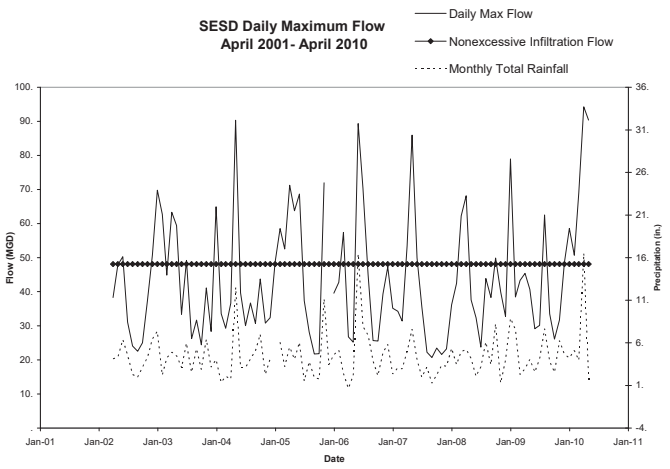


Figure 2. SESD Daily Maximum Flow Compared to Nonexcessive I/I Standard



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

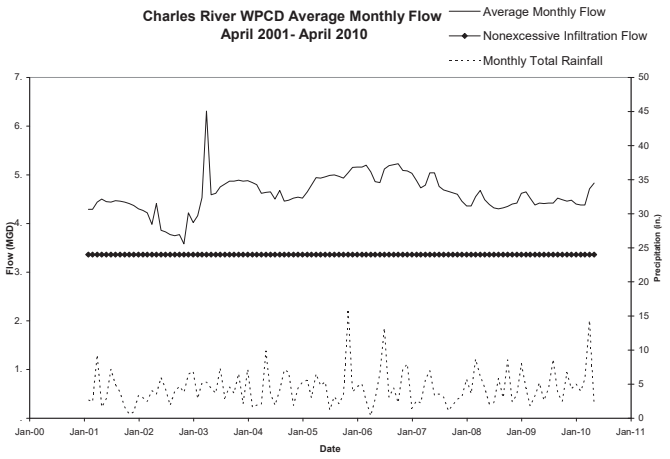
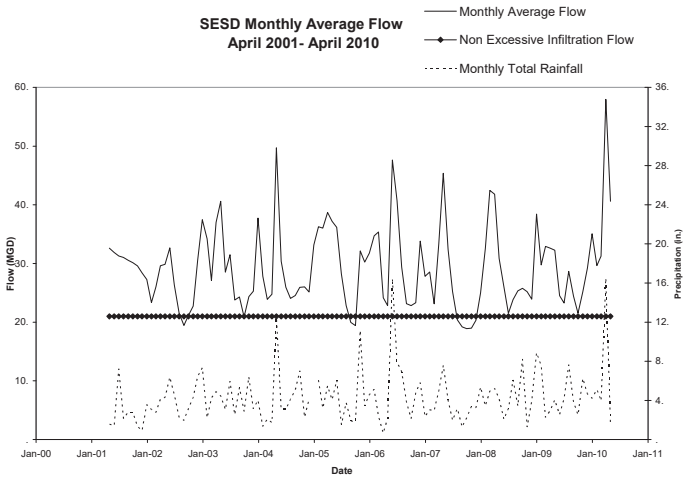


Figure 4. SESD Monthly Average Flow Compared to Nonexcessive Infiltration Standard



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

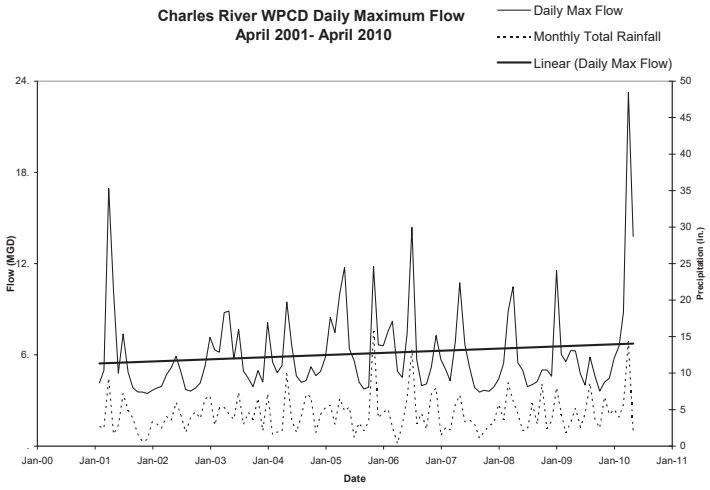
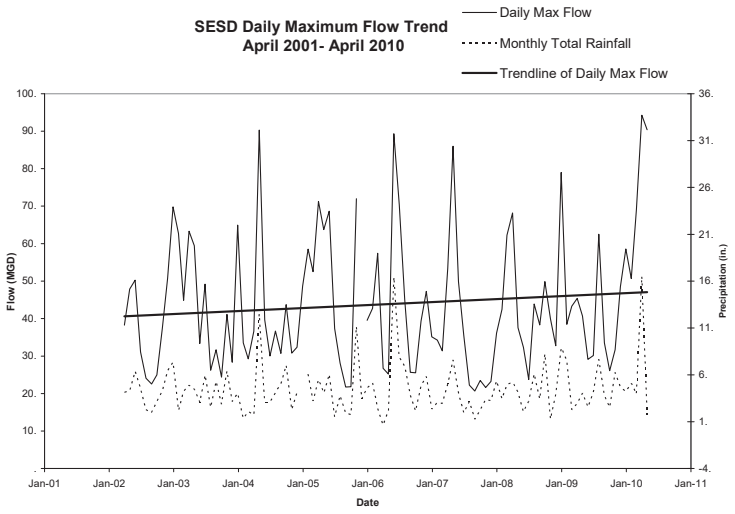


Figure 6. SESD Daily Maximum Flow Trend



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

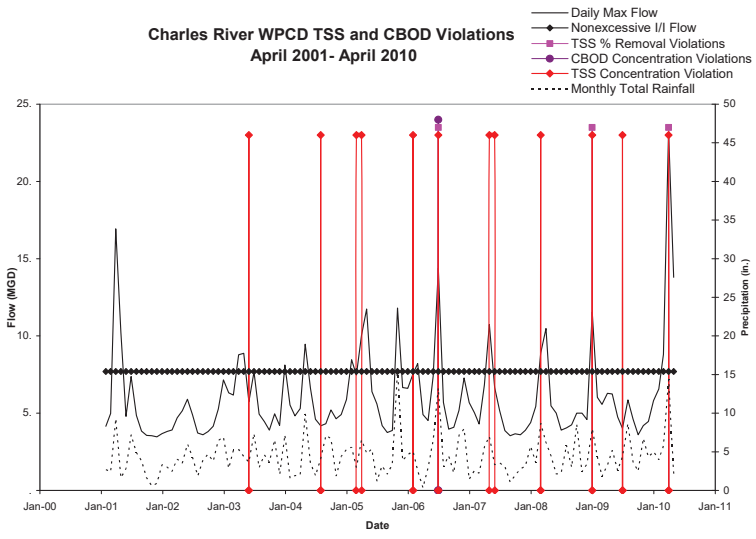
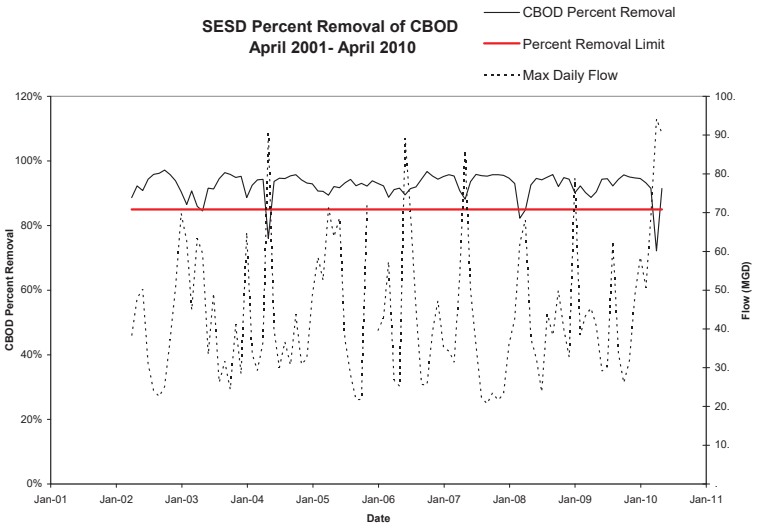


Figure 8 shows SESD's results for removal of CBOD, in percentage, as compared to maximum daily flow. SESD had three permit violations where CBOD removal fell below 85%, all during months with high Maximum Daily Flows.

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

Appendix E

CSO Outfall Locations

Outfall #	Name	Latitude	Longitude	Receiving Water
002-SDS#1	Walker Station	42.64621	-71.33407	Merrimack River
007-SDS#2	Beaver Brook	42.65933	-71.31925	Beaver Brook
008-SDS#3	West Street	42.65254	-71.31032	Merrimack River
011-SDS#4	Read Street	42.64822	-71.30111	Merrimack River
012-SDS#5	First Street	42.64756	-71.29086	Merrimack River
020-SDS#6	Warren Street	42.64277	-71.30502	Concord River
027-SDS#7	Tilden Street	42.65072	-71.31152	Merrimack River
030(1)-SDS#8	Barasford Avenue	42.64531	-71.28841	Merrimack River
030(2)	Merrimack Station	42.64518	-71.28881	Merrimack River