AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended, 33 U.S.C. §§ 1251 et seq. (the "CWA"),

Town of Amherst, Massachusetts

is authorized to discharge from the facility located at

Amherst Wastewater Treatment Plant
100 Mullins Way
Hadley, Massachusetts 01035

to receiving water named

Connecticut River
Connecticut River Watershed

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on the first day of the calendar month immediately following 60 days after signature. [1]

This permit expires at midnight, five years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on June 26, 2012.

This permit consists of **Part I** including the cover page(s), **Attachment A** (Freshwater Acute Toxicity Test Procedure and Protocol, February 2011), **Attachment B** (PFAS Analyte List) and **Part II** (NPDES Part II Standard Conditions, April 2018).

Signed this day of

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Ken Moraff, Director
Water Division
Environmental Protection Agency
Region 1
Boston, MA

[1] Pursuant to 40 Code of Federal Regulations (CFR) § 124.15(b)(3), if no comments requesting a change to the Draft Permit are received, the permit will become effective upon the date of signature. Procedures for appealing EPA's Final Permit decision may be found at 40 CFR § 124.19.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge treated effluent through Outfall Serial Number 001 to the Connecticut River. The discharge shall be limited and monitored as specified below; the receiving water and the influent shall be monitored as specified below.

Effluent Characteristic	Effluent Limitation			Monitoring Requirements[1,2,3]	
	Average Monthly	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample Type[4]**
Rolling Average Effluent Flow[5]	7.1 MGD[5]	---	---	Continuous	Recorder
Effluent Flow[5]	Report MGD	---	Report MGD	Continuous	Recorder
$CBOD_5$	25 mg/L 1,480 lb/day	40 mg/L 2,369 lb/day	Report mg/L	2/Week	Composite
$CBOD_5$ Removal	≥ 85 %	---	---	1/Month	Calculation
TSS	30 mg/L 1,776 lb/day	45 mg/L 2,665 lb/day	Report mg/L	2/Week	Composite
TSS Removal	≥ 85 %	---	---	1/Month	Calculation
pH Range[6]	6.0 - 8.3 S.U.			1/Day	Grab
Total Residual Chlorine[7,8]	---	---	1.0 mg/L	1/Day	Grab
Escherichia coli [7,8] (April 1 – October 31)	126 cfu/100 mL	---	409 cfu/100 mL	2/Week	Grab
Total Kjeldahl Nitrogen[9] (April 1 – October 31) (November 1 – March 31)	 Report mg/L Report mg/L	---	 Report mg/L Report mg/L	 1/Week 1/Month	 Composite Composite
Nitrate + Nitrite[9] (April 1 – October 31) (November 1 – March 31)	 Report mg/L Report mg/L	---	 Report mg/L Report mg/L	 1/Week 1/Month	 Composite Composite
Total Nitrogen[9]	Report mg/L Report lb/day	---	Report mg/L	1/Month	Calculation
Rolling Average Total Nitrogen[10]	474 lb/day	---	---	1/Month	Calculation
PFAS Analytes[11]	---	---	Report ng/L	1/Quarter	Grab

Effluent Characteristic	Effluent Limitation			Monitoring Requirements[1,2,3]	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type[4]
Adsorbable Organic Fluorine[12]	---	---	Report ng/L	1/Quarter	Grab
Whole Effluent Toxicity (WET) Testing[13,14]					
LC_{50}	---	---	≥ 50 %	2/Year	Composite
Hardness	---	---	Report mg/L	2/Year	Composite
Ammonia Nitrogen	---	---	Report mg/L	2/Year	Composite
Total Aluminum	---	---	Report mg/L	2/Year	Composite
Total Cadmium	---	---	Report mg/L	2/Year	Composite
Total Copper	---	---	Report mg/L	2/Year	Composite
Total Nickel	---	---	Report mg/L	2/Year	Composite
Total Lead	---	---	Report mg/L	2/Year	Composite
Total Zinc	---	---	Report mg/L	2/Year	Composite
Total Organic Carbon	---	---	Report mg/L	2/Year	Composite

Ambient Characteristic[15]	Reporting Requirements			Monitoring Requirements[1,2,3]	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type[4]
Hardness	---	---	Report mg/L	2/Year	Grab
Ammonia Nitrogen	---	---	Report mg/L	2/Year	Grab
Total Aluminum	---	---	Report mg/L	2/Year	Grab
Total Cadmium	---	---	Report mg/L	2/Year	Grab
Total Copper	---	---	Report mg/L	2/Year	Grab
Total Nickel	---	---	Report mg/L	2/Year	Grab
Total Lead	---	---	Report mg/L	2/Year	Grab
Total Zinc	---	---	Report mg/L	2/Year	Grab
Total Organic Carbon	---	---	Report mg/L	2/Year	Grab
Dissolved Organic Carbon[16]	---	---	Report mg/L	2/Year	Grab

pH[17]	---	---	Report S.U.	2/Year	Grab
Temperature[17]	---	---	Report °C	2/Year	Grab

Influent Characteristic	**Reporting Requirements**			**Monitoring Requirements[1,2,3]**	
	Average Monthly	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample Type[4]**
$CBOD_5$	Report mg/L	---	---	2/Month	Composite
TSS	Report mg/L	---	---	2/Month	Composite
PFAS Analytes[11]	---	---	Report ng/L	1/Quarter	Grab
Adsorbable Organic Fluorine[12]	---	---	Report ng/L	1/Quarter	Grab

Sludge Characteristic	**Reporting Requirements**			**Monitoring Requirements[1,2,3]**	
	Average Monthly	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample Type[4]**
PFAS Analytes[11]	---	---	Report ng/g	1/Quarter	Grab[18]

Footnotes:

1. All samples shall be collected in a manner to yield representative data. A routine sampling program shall be developed in which samples are taken at the same location, same time and same days of the week each month. Occasional deviations from the routine sampling program are allowed, but the reason for the deviation shall be documented as an electronic attachment to the applicable discharge monitoring report. The Permittee shall report the results to the Environmental Protection Agency Region 1 (EPA) and MassDEP (the "State") of any additional testing above that required herein, if testing is in accordance with 40 CFR Part 136.

2. In accordance with 40 CFR § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O, for the analysis of pollutants or pollutant parameters (except WET). A method is "sufficiently sensitive" when: 1) The method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or 2) The method has the lowest ML of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O for the measured pollutant or pollutant parameter. The term "minimum level" refers either to the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in the following ways: they may be published in a method; they may be based on 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 laboratory, by a factor.

3. When a parameter is not detected above the ML, the Permittee must report the data qualifier signifying less than the ML for that parameter (e.g., < 50 µg/L, if the ML for a parameter is 50 µg/L). For reporting an average based on a mix of values detected and not detected, assign a value of "0" to all non-detects for that reporting period and report the average of all the results.

4. A "grab" sample is an individual sample collected in a period of less than 15 minutes.

   A "composite" sample is a composite of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportional to flow.

5. The limit is a rolling annual average, reported in million gallons per day (MGD), which will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows of the previous eleven months. Also report monthly average and maximum daily flow in MGD.

6. The pH shall be within the specified range at all times. The minimum and maximum pH sample measurement values for the month shall be reported in standard units (S.U.).

If the Permittee wishes to continue the lower pH range to 6.0 S.U. for future permit cycles, they must conduct a pH study and submit the results of said study to MassDEP at massdep.npdes@mass.gov within three years of the effective date of the authorization to discharge under this permit. For guidance on the study, the Permittee shall contact MassDEP at massdep.npdes@mass.gov.

7. The Permittee shall minimize the use of chlorine while maintaining adequate bacterial control. Monitoring for total residual chlorine (TRC) is only required for discharges which have been previously chlorinated or which contain residual chlorine. If chlorine is not utilized during a particular monitoring period, TRC monitoring is not necessary and the Permittee may enter "NODI" code 9 (i.e., conditional monitoring) in the relevant discharge monitoring report.

   Chlorination and dechlorination systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine dosing system that may have resulted in levels of chlorine that were inadequate for achieving effective disinfection, or interruptions or malfunctions of the dechlorination system that may have resulted in excessive levels of chlorine in the final effluent shall be reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.

8. The monthly average limit for *Escherichia coli* (*E. coli*) is expressed as a geometric mean. *E. coli* monitoring shall be conducted concurrently with TRC monitoring, if TRC monitoring is required.

9. Total Kjeldahl nitrogen and nitrate + nitrite samples shall be collected concurrently. The results of these analyses shall be used to calculate both the concentration and mass loadings of total nitrogen, as follows.

   Total Nitrogen (mg/L) = Total Kjeldahl Nitrogen (mg/L) + Nitrate + Nitrite (mg/L)

   Total Nitrogen (lb/day) = [(average monthly Total Nitrogen (mg/L) * total monthly effluent flow (Millions of Gallons (MG)) / # of days in the month] * 8.34

10. The rolling annual total nitrogen limit is an annual average mass-based limit (lb/day), which shall be reported as a rolling 12-month average. The value will be calculated as the arithmetic mean of the monthly average total nitrogen for the reporting month and the monthly average total nitrogen for the previous 11 months. Report both the rolling annual average and the monthly average each month.

    See Part I.G.1 for special conditions related to nitrogen.

11. Report in nanograms per liter (ng/L) for effluent and influent samples; report nanograms per gram (ng/g) for sludge samples. Until there is an analytical method approved in 40

CFR Part 136 for PFAS, monitoring shall be conducted using Draft Method 1633. Report in NetDMR the results of all PFAS analytes required to be tested in Method 1633, as shown in Attachment B. This reporting requirement for the listed PFAS parameters takes effect the first full calendar quarter following six months after the effective date of the permit.

12. Report in nanograms per liter (ng/L) for effluent and influent samples. Until there is an analytical method approved in 40 CFR Part 136 for Adsorbable Organic Fluorine, monitoring shall be conducted using Draft Method 1621. This reporting requirement takes effect the first full calendar quarter following six months after the effective date of the permit.

13. The Permittee shall conduct acute toxicity tests (LC50) in accordance with test procedures and protocols specified in Attachment A of this permit. LC50 is defined in Part II.E. of this permit. The Permittee shall test the daphnid, *Ceriodaphnia dubia*. Toxicity test samples shall be collected during the same weeks each time of calendar quarters ending June 30th and December 31st. The complete report for each toxicity test shall be submitted as an attachment to the DMR submittal which includes the results for that toxicity test.

14. For Part I.A.1., Whole Effluent Toxicity Testing, the Permittee shall conduct the analyses specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS for the effluent sample. If toxicity test(s) using the receiving water as diluent show the receiving water to be toxic or unreliable, the Permittee shall follow procedures outlined in **Attachment A**, Section IV., DILUTION WATER. Minimum levels and test methods are specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS.

15. For Part I.A.1., Ambient Characteristic, the Permittee shall conduct the analyses specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS for the receiving water sample collected as part of the WET testing requirements. Such samples shall be taken from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location, as specified in **Attachment A**. Minimum levels and test methods are specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS.

16. Monitoring and reporting for dissolved organic carbon (DOC) are not requirements of the Whole Effluent Toxicity (WET) tests but are additional requirements. The Permittee may analyze the WET samples for DOC or may collect separate samples for DOC concurrently with WET sampling.

17. A pH and temperature measurement shall be taken of each receiving water sample at the time of collection and the results reported on the appropriate DMR. These pH and temperature measurements are independent from any pH and temperature measurements required by the WET testing protocols.

18. Sludge sampling shall be as representative as possible based on guidance found at https://www.epa.gov/sites/production/files/2018-11/documents/potw-sludge-sampling-guidance-document.pdf.

Part I.A., continued.

2. The discharge shall not cause a violation of the water quality standards of the receiving water.

3. The discharge shall be free from pollutants in concentrations or combinations that, in the receiving water, settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.

4. The discharge shall be free from pollutants in concentrations or combinations that adversely affect the physical, chemical, or biological nature of the bottom.

5. The discharge shall not result in pollutants in concentrations or combinations in the receiving water that are toxic to humans, aquatic life or wildlife.

6. The discharge shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to the receiving water.

7. The discharge shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.

8. The Permittee must provide adequate notice to EPA-Region 1 and the State of the following:

    a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to Part 301 or Part 306 of the Clean Water Act if it were directly discharging those pollutants or in a primary industry category (see 40 CFR Part 122 Appendix A as amended) discharging process water; and

    b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

    c. For purposes of this paragraph, adequate notice shall include information on:

        (1) The quantity and quality of effluent introduced into the POTW; and

        (2) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

9. Pollutants introduced into the POTW by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

10. In accordance with 40 CFR § 122.44(j)(1) the Permittee must identify, in terms of character and volume, any Significant Industrial Users (SIUs) discharging into the POTW subject to

Pretreatment Standards under section 307(b) of CWA and 40 CFR Part 403. SIUs information shall be updated at a minimum of once per year or at that frequency necessary to ensure that all SIUs are properly permitted and/or controlled. The records shall be maintained and updated as necessary.

B. UNAUTHORIZED DISCHARGES

1. This permit authorizes discharges only from the outfall listed in Part I.A.1, in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit. The Permittee must provide verbal notification to EPA within 24 hours of becoming aware of any unauthorized discharge and a report within 5 days, in accordance with Part II.D.1.e (24-hour reporting). Providing that it contains the information required in Part II.D.1.e, submission of the MassDEP SSO Reporting Form (described in Part I.B.3 below) may satisfy the requirement for a written report. See Part I.H below for reporting requirements.

2. The Permittee must provide notification to the public within 24 hours of becoming aware of any unauthorized discharge, except SSOs that do not impact a surface water or the public, on a publicly available website, and it shall remain on the website for a minimum of 12 months. Such notification shall include the location (including latitude and longitude) and description of the discharge; estimated volume; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue.

3. Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes MassDEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at https://www.mass.gov/how-to/sanitary-sewer-overflowbypassbackup-notification. Notification to MassDEP and EPA shall not release the Permittee from the MassDEP public notification requirements of 314 CMR 16.00.

C. OPERATION AND MAINTENANCE OF THE TREATMENT AND CONTROL FACILITIES

1. Wastewater Treatment Facility

Operation and maintenance (O&M) of the wastewater treatment facility[2] (WWTF) owned and/or operated by the Permittee shall be in compliance with 40 CFR § 122.41 (d) and (e) and the terms and conditions of the Part II Standard Conditions, B. Operation and Maintenance of Pollution Controls which is attached to this Permit.

a. *WWTF Major Storm and Flood Events Plan*. Within 12 months of the effective date of this Permit, the Permittee shall develop and submit a *WWTF Major Storm and Flood*

[2] Wastewater Treatment Facility means any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It does not include sewers, pipes and other conveyances to the wastewater treatment facility.

Events Plan and begin to implement mitigation measures consistent with the schedule contained in this paragraph. The Plan shall contain three components: (1) an asset vulnerability evaluation, (2) a systemic vulnerability evaluation[3] of the assets, and (3) a mitigation measures alternatives analysis. The Plan shall include resiliency and implementation planning informed by an evaluation of all WWTF vulnerabilities to major storm and flood events[4]. The planning process shall be iterative, and re-evaluations shall be conducted; (1) if on- or off-site structures are added, removed or significantly changed in any way that will impact the vulnerability of the WWTF; and (2) as data sources used for such evaluations are revised, or generated. At a minimum, the Plan must take future conditions into consideration, specifically the midterm (i.e., 20-30 years) and long-term (i.e., 80-100 years) and, in the case of sea level change, the plan must consider extreme sea level change. The Plan shall be updated at least every five (5) years from the effective date of this Permit and must take future conditions into consideration.[5]

(1) *Component 1: Asset Vulnerability Evaluation*. This first component of the *WWTF Major Storm and Flood Events Plan* must assess the vulnerability of individual WWTF-related assets. The Permittee may find EPA's guide: Flood Resilience: A Basic Guide for Water and Wastewater Utilities[6] and EPA's website[7] Creating Resilient Water Utilities (CRWU) helpful for completing this component.

The *Asset Vulnerability Evaluation* shall include, at a minimum, the following:

[3] To determine the vulnerabilities to the facilities from major storm and flood events, you must conduct the evaluation using, at a minimum, the worst-case data relating to changes in precipitation, sea level rise, extreme weather events, coastal flooding, inland flooding, sewer flow and inflow and infiltration and relevant to the facilities from: 1) the data generated by the 13 federal agencies that conduct or use research on global change that contributed to the latest National Climate Assessment produced by the U.S. Global Change Research Program (USGCRP); 2) climate data generated by the Commonwealth of Massachusetts; and 3) resiliency planning completed by the municipality in which a given facility is located (i.e., City of Boston) and incorporate the results of the evaluation in a manner that demonstrates that the control measures taken are precautionary and sufficiently protective. Evaluation must be completed by a qualified person on a five-year basis considering 1) historical observations from all years the Permittee has operated the facility prior to this permit's term; 2) set midterm (i.e., 20-30 years) and long term (i.e., 80-100 years) ranges.

[4] "Major storm and flood events" refer to instances resulting from major storms such as hurricanes, extreme/heavy precipitation events, and pluvial, fluvial, and flash flood events such as high-water events, storm surge, and high-tide flooding. "Extreme/heavy precipitation" refers to instances during which the amount of rain or snow experienced in a location substantially exceeds what is normal. What constitutes a period of heavy precipitation varies according to location and season. "Extreme/heavy precipitation" does not necessarily mean the total amount of precipitation at a location has increased-just that precipitation is occurring in more intense or more frequent events.

[5] It will be advantageous to the permittee to consider low, medium, high and extreme levels of sea level change to determine priority assets and plan for increasingly protective mitigation measures.

[6] https://www.epa.gov/sites/default/files/2015-08/documents/flood_resilience_guide.pdf

[7] https://www.epa.gov/crwu

i. Description of planning priorities related to major storm and flood event vulnerabilities presented by the location of the WWTF (e.g., proximity to waterbodies which may cause flooding).

ii. Identification of all assets related to the WWTF (e.g., buildings, laboratories and offices, WWTF, septage collection facilities, etc.), the elevation of each asset, and if the asset falls into the 100-year flood map or the 500-year flood map;[8]

iii. Description of structural improvements, either completed or planned, and/or other mitigation measures[9] designed to minimize[10] the impacts of major storm and flood events to each specific asset identified above.

The Permittee shall consider, at a minimum, the following measures:

(a) Construction of flood barriers to protect infrastructure or reinforce existing structures to withstand flooding and additional exertion of force;
(b) Establish remote locations for operations, equipment, records and data backups;
(c) Plan and establish alternative or on-site power supply[11];
(d) Relocate facilities and/or infrastructure to higher elevations;
(e) Catalog emergency resources used during a major storm or flood event;
(f) Develop emergency response plans;
(g) Establish contracts for backup supplies of critical chemicals;
(h) Establish mutual aid agreements with neighboring utilities;
(i) Integrate long-term risks into capital improvement plans;
(j) Participate in community planning and regional collaborations;
(k) Conduct staff training for implementing your emergency procedures at regular intervals;

[8] See https://www.epa.gov/sites/default/files/2015-08/documents/flood_resilience_guide.pdf for a basic guide to flood resiliency for water and wastewater utilities.
[9] Mitigation measure can be, for example, an emergency planning activity, equipment modification/upgrade or new capital investment/construction project.
[10] For the purposes of this provision, the term "minimize" means to reduce and/or eliminate to the extent achievable the impacts to the facilities.
[11] The Permittee shall clearly document measures taken specifically to manage energy system disruptions, such as a general power outage, as well as document whether and, if so, to what extent, power supply adequate to ensure safe and reliable operations of the facility is threatened during a major storm or flood. They shall clearly document measures that have been taken to address any risks the facility faces of losing power during a major storm or flood in a manner that could result in environmental or public health impacts.

(l) When designing new or replacement facilities, strive to locate facilities above the relative base flood elevation[12] for both the 1% (100-year) and 0.2 % (500-year) chance storm events.

iv. Identify the source of data used to assess vulnerabilities to major storm and flood events.

v. Identify potential funding sources[13] for resilience planning and implementation. (e.g., EPA, FEMA, MassDEP, capital planning, etc.).

(2) *Component 2: Systemic Vulnerability Evaluation*. Upon completing assessment of the vulnerabilities of individual assets, the permittee shall evaluate the vulnerability of its WWTF system as a whole. This second component of the evaluation shall include, at a minimum, a systematic vulnerability evaluation for each asset identified in Part I.C.1.a.(1), including the following:

i. Define the criticality of the asset to overall treatment facility operations[14].

ii. Identify the highest[15] priority assets for the facility/system and the measures taken (or planned) to reduce facility vulnerability to risks that could degrade overall system operations in a manner that would result in environmental or public health impacts.

(3) *Component 3: Mitigation Measures Alternatives Evaluation.* Upon completing assessment of the vulnerabilities of the WWTF system as a whole, the Permittee shall provide an assessment of asset-specific mitigation measures, and/or, if appropriate, combinations of mitigation measures to minimize the impact of major storm and flood events. The Permittee shall then select the most effective mitigation measure(s) and include a schedule for implementation. This third component shall include, at a minimum, the following:

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[12] For activities proposed for MA facilities within Areas Subject to Protection under M.G.L. c. 131, § 40 or the 100-foot buffer zone, the Base Flood Elevation is defined at 310 CMR 10.04, Definitions of Special Flood Hazard Area, Velocity Zone, and Coastal High Hazard Area, Land Subject to Coastal Storm Flowage at 310 CMR 10.36 and Bordering Land Subject to Flooding, and Isolated Land Subject to Flooding at 310 CMR 10.57. Also refer to the Massachusetts State Building Code for any other required standards related to Base Flood Elevation.

[13] See https://www.epa.gov/fedfunds

[14] For example, an asset like a pumping station or headworks is often scored "high" for criticality, as the safe and reliable operation of many assets during a major storm or flood depend upon the continued operation of that particular asset. If a pump station is degraded or fails, many other assets operations can degrade or fail, resulting in environmental or public health impacts.

[15] Based on the combined assessment of asset-level vulnerability today and in the midterm (i.e., 20-30 years) and long-term (i.e., 80-100 years), the criticality of that asset's performance to the operations of the system today and in the midterm (i.e., 20-30 years) and long-term (i.e., 80-100 years).

i. An evaluation of mitigation measure alternatives including a cost-effectiveness analysis and a review of technical, environmental, and institutional factors.

ii. For each mitigation measure, quantitatively document (including assumptions and methodologies) the residual risk today, in the midterm (i.e., 20-30 years) and the long-term (i.e., 80-100 years). The evaluation should include estimates of which customers and geographic areas bear the residual risk after implementation of the mitigation measures. Residual risk is a term that refers to the risk remaining for an asset or system, after mitigation measures are taken.

iii. Selection of mitigation measures to be undertaken, including:

a. a schedule[16] of implementation for each selected mitigation measure[17]; and

b. a map showing the location of planned mitigation measure.

(4) *Annual Report*. The Permittee shall submit an Annual Operation and Maintenance Report on the *WWTF Major Storm and Flood Events Plan* implementation and results for the prior calendar year including documenting any changes to the WWTF or other assets that may impact the current vulnerability evaluation. The first annual report is due the first March 31 following submittal of the *Wastewater Treatment Facility Major Storm and Flood Events Plan* and shall be included with the annual report required in Part I.C.3 below.

2. Sewer System

Operation and maintenance (O&M) of the sewer system shall be in compliance with 40 CFR § 122.41 (d) and (e) and the terms and conditions of the Part II Standard Conditions, B. Operation and Maintenance of Pollution Controls which is attached to this Permit. The Permittee shall complete the following activities for the collection system which it owns:

a. Maintenance Staff

[16] In describing the schedule to implement mitigation measures, the Permittee shall clearly document which mitigation measures identified in the Plan have or have not been integrated into that system's capital planning process. A mitigation measure is integrated when a budget line item in that system's current and adopted capital plan clearly identifies the year of completion and expenditure that has been budgeted and approved to complete that mitigation measure.

[17] For all measures considered, the Permittee must document in the Plan the factual basis (i.e., the maps, data sets and calculations for the analysis), for either implementing or not implementing the measure. The factual basis and analysis must be presented in sufficient detail to allow EPA, the public, or an independent qualified person to evaluate the reasonableness of the decision. For measures already in place, including requirements from state, local or federal agencies, a description of the measures and how they meet the requirement(s) of this permit must be documented in the Plan.

The Permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit. Provisions to meet this requirement shall be described in the Sewer System O&M Plan required pursuant to Part I.C.2.e. below.

b. Preventive Maintenance Program

The Permittee shall maintain an ongoing preventive maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges. Plans and programs to meet this requirement shall be described in the Sewer System O&M Plan required pursuant to Part I.C.2.e. below.

c. Infiltration/Inflow

The Permittee shall control infiltration and inflow (I/I) into the sewer system as necessary to prevent high flow related unauthorized discharges from their collection systems and high flow related violations of the wastewater treatment plant's effluent limitations. Plans and programs to control I/I shall be described in the Sewer System O&M Plan required pursuant to Part I.C.2.e. below.

d. Sewer System Mapping

The Permittee shall maintain a map of the sewer collection system it owns. The map shall be on a street basemap of the community, with sufficient detail and at a scale to allow easy interpretation for the general public. The sewer system information shown on the map shall be based on current conditions and shall be kept up-to-date. The Permittee shall make the map available online in a downloadable Geographic Information System (GIS) format, available to the public, in a manner where the system's performance can be independently assessed and analyzed. It should include as much information as listed below as possible, with full consideration given to concerns of security, where demonstrated. If any items listed below, such as the location of all outfalls, are not fully documented, the Permittee must clearly identify each component of the dataset that is incomplete, as well as the date of the last update of the mapping product. Such map(s) shall include, but not be limited to the following:

(1) All sanitary sewer lines and related manholes;

(2) All combined sewer lines, related manholes, and catch basins;

(3) All combined sewer regulators and any known or suspected connections between the sanitary sewer and storm drain systems (e.g. combination manholes);

(4) All outfalls, including the treatment plant outfall(s), CSOs, and any known or suspected SSOs, including stormwater outfalls that are connected to combination manholes;

(5) All pump stations and force mains;

(6) The wastewater treatment facility(ies);

(7) All surface waters (labeled);

(8) Other major appurtenances such as inverted siphons and air release valves;

(9) A numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;

(10) The scale and a north arrow; and

(11) The pipe diameter, date of installation, type of material, distance between manholes, and the direction of flow.

e. Sewer System Operation and Maintenance Plan

The Permittee shall continue to update and implement a *Sewer System Operation and Maintenance Plan* it has previously submitted to EPA and the State for the portion of the system it owns. The Plan shall be available for review by federal, state and local agencies as requested. The Plan shall include:

(1) A description of the collection system management goals, staffing, information management, and legal authorities;

(2) A description of the collection system and the overall condition of the collection system including a list of all pump stations and a description of recent studies and construction activities;

(3) A preventive maintenance and monitoring program for the collection system;

(4) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;

(5) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;

(6) Identification of known and suspected overflows and back-ups, including manholes. A description of the cause of the identified overflows and back-ups, corrective actions taken, and a plan for addressing the overflows and

back-ups consistent with the requirements of this permit;

(7) A description of the Permittee's programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts;

(8) An educational public outreach program for all aspects of I/I control, particularly private inflow; and

(9) An Overflow Emergency Response Plan to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the permit.

(10) Within 12 months of the effective date of this Permit, the Permittee shall develop, submit and begin to implement a *Sewer System Major Storm and Flood Events Plan* as an element of the *Sewer System Operations and Maintenance Plan*. The Plan shall contain three components: (1) an asset vulnerability evaluation, (2) a systemic vulnerability evaluation of the system and (3) an alternatives analysis. The Plan shall include resiliency planning and implementation informed by an evaluation[18] of all sewer system vulnerabilities to major storm and flood events[19]. The planning process shall be iterative, and re-evaluations shall be conducted; (1) if on- or off-site structures are added, removed or significantly changed in any way that will impact the vulnerability of the sewer system and (2) as data sources used for such evaluations are revised or generated. At a minimum, the Plan must take future conditions into consideration, specifically midterm (i.e., 20-30 years)

[18] To determine the vulnerabilities to the facilities from major storm and flood events, you must conduct the evaluation using, at a minimum, the worst-case data relating to changes in precipitation, sea level rise, extreme weather events, coastal flooding, inland flooding, sewer flow and inflow and infiltration and relevant to the facilities from: 1) the data generated by the 13 federal agencies that conduct or use research on global change that contributed to the latest National Climate Assessment produced by the U.S. Global Change Research Program (USGCRP); 2) climate data generated by the Commonwealth of Massachusetts; and 3) resiliency planning completed by the municipality in which a given facility is located (i.e., City of Boston) and incorporate the results of the evaluation in a manner that demonstrates that the control measures taken are precautionary and sufficiently protective. Evaluation must be completed by a qualified person on a five-year basis considering 1) historical observations from all years the Permittee has operated the facility prior to this permit's term; 2) set midterm (i.e., 20-30 years) and long term (i.e., 80-100 years) ranges.

[19] "Major storm and flood events" refer to instances resulting from major storms such as hurricanes, extreme/heavy precipitation events, and pluvial, fluvial, and flash flood events such as high-water events, storm surge, and high-tide flooding. "Extreme/heavy precipitation" refers to instances during which the amount of rain or snow experienced in a location substantially exceeds what is normal. What constitutes a period of heavy precipitation varies according to location and season. "Extreme/heavy precipitation" does not necessarily mean the total amount of precipitation at a location has increased-just that precipitation is occurring in more intense or more frequent events.

and long-term (i.e., 80-100 years) and, in the case of sea level change, the plan must consider extreme sea level change. The Plan shall be updated every five (5) years from the effective date of this Permit.

i. *Component 1: Asset Vulnerability Evaluation*. The first component of the *Sewer System Operation and Maintenance Plan* must assess the vulnerability of individual sewer system-related assets. The Permittee may find EPA's guide: Flood Resilience: A Basic Guide for Water and Wastewater Utilities[20] and EPA's website[21] Creating Resilient Water Utilities (CRWU) helpful for completing this component.

The Asset Vulnerability Evaluation shall include, at a minimum, the following:

(a) Description of planning priorities related to the location of the sewer system;
(b) Identification of all assets (e.g., pump stations, pipes, etc...), the elevation of the asset, and if the asset falls into the 100-year flood map or the 500-year flood map[22];
(c) Description of structural improvements, and/or other mitigation measures[23] to minimize[24] the impacts of major storm and flood events to each specific asset identified in Part I.C.2.e.(10).i.(b). above.

The Permittee shall consider, at a minimum, the following measures:

(i) Construction of flood barriers to protect structure or reinforce existing structures to withstand flooding and additional exertion of force;
(ii) Establish remote locations for operations, equipment, records and data backups;
(iii) Plan and establish alternative or on-site power supply[25];
(iv) Relocate facilities and/or infrastructure to higher elevations;

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[20] https://www.epa.gov/sites/default/files/2015-08/documents/flood_resilience_guide.pdf
[21] https://www.epa.gov/crwu
[22] See https://www.epa.gov/sites/default/files/2015-08/documents/flood_resilience_guide.pdf for a basic guide to flood resiliency for water and wastewater utilities.
[23] Mitigation measure can be an emergency planning activity, equipment modification/upgrade or new capital investment/construction project.
[24] For the purposes of this provision, the term "minimize" means to reduce and/or eliminate to the extent achievable the impacts to the facilities.
[25] The Permittee shall clearly document measures taken specifically to manage energy system disruptions, such as a general power outage, well as document whether and, if so, to what extent, power supply adequate to ensure safe and reliable operations of the facility is threatened during a major storm or flood. They shall clearly document measures that have been taken to address any risks the facility faces of losing power during a major storm or flood in a manner that could result in environmental or public health impacts.

(v) Catalog emergency resources used during a major storm or flood event;
(vi) Develop emergency response plans;
(vii) Establish mutual aid agreements with neighboring utilities;
(viii) Integrate long-term risks into capital improvement plans;
(ix) Participate in community planning and regional collaborations;
(x) Conduct staff training for implementing your emergency procedures at regular intervals;
(xi) When designing new or replacement facilities, strive to locate facilities above the base flood elevation[26]

(d) Identify the source of data used to assess vulnerabilities to major storm and flood events.

(e) Identify the potential funding sources[27] for resilience planning and implementation (e.g., EPA, FEMA, MassDEP, capital planning, etc.).

ii. *Component 2: Systemic Vulnerability Evaluation.* Upon completing assessment of the vulnerabilities of individual assets, the Permittee shall evaluate the vulnerability of its sewer system as a whole. This second component of the shall include, at a minimum. a systematic vulnerability evaluation for each asset identified in Part I.C.2.e.(10).i.(b), including the following:

(a) Define the criticality of each asset to the overall sewer system operations
(b) Identify the highest priority assets for the sewer system and measures[28] taken to reduce system vulnerability to risks that could degrade the overall system operations in a manner that would result in environmental or public health impacts

[21] For MA facilities, For activities proposed within Areas Subject to Protection under M.G.L. c. 131, § 40 or the 100-foot buffer zone, the Base Flood Elevation is defined at 310 CMR 10.04, Definitions of Special Flood Hazard Area, Velocity Zone, and Coastal High Hazard Area, Land Subject to Coastal Storm Flowage at 310 CMR 10.36 and Bordering Land Subject to Flooding, and Isolated Land Subject to Flooding at 310 CMR 10.57. Also refer to the Massachusetts State Building Code for any other required standards related to Base Flood Elevation.
[27] See https://www.epa.gov/fedfunds
[28] For example, an asset like a pumping station or headworks is often ranked "high" for criticality, as the safe and reliable operation of many assets during a major storm or flood depend upon the continued operation of that particular asset. If a pump station is degraded or fails, many other assets operations can degrade or fail, resulting in environmental or public health impacts.

iii. *Component 3: Alternatives Evaluation*. Upon completing assessment of the vulnerabilities of the sewer system as a whole, the Permittee shall provide an assessment of individual asset-specific, and/or, if appropriate, combinations of mitigation measures must be presented in order to determine the most effective mitigation measures to minimize the impact of major storm and flood events.

This third component shall include, at a minimum, the following with regard to alternative evaluation, at a minimum

(a) An evaluation of alternatives including a cost-effectiveness analysis and a review of technical, environmental, and institutional factors. The alternatives analysis should conclude with the development of a recommended plan.
(b) For each alternative, quantitatively document (including assumptions and methodologies) the residual risk today and for the midterm (i.e., 20-30 years) and long-term (i.e., 80-100 years). The evaluation should include estimates of which customers and geographic areas bear the residual risk from the approach to resiliency planning in that system. Residual risk is a term that refers to the risk remaining for an asset or system, after mitigation measures are taken.
(c) For each asset, document the total projected alternatives for implementing all planned mitigation measures identified in the *Sewer System Major Storm and Flood Events Plan.*
(d) Selection of mitigation measures to be undertaken, including:
  (i) a schedule to implement each selected mitigation measure: and
  (ii) a map showing the location of planned mitigation measures.

iv. *Annual Report.* The Permittee shall submit an Annual Operation and Maintenance Report on the *Sewer System Major Storm and Flood Events Plan* implementation and results for the prior calendar year including documenting any changes to the sewer system or other assets that may impact the current vulnerability evaluation. The first annual report is due the first March 31 following submittal of the *Sewer System Major Storm and Flood Events Plan* and shall be included with the annual report required in Part I.C.3 below.

3. Annual Reporting Requirement

The Permittee shall submit a summary report of activities related to the implementation of its O&M Plans during the previous calendar year. The report shall be submitted to EPA and the State annually by March 31. The summary report shall, at a minimum, include:

a. A description of the staffing levels maintained during the year;

b. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year;

c. Expenditures for any collection system maintenance activities and corrective actions taken during the previous year;

d. A map with areas identified for investigation/action in the coming year;

e. A summary of unauthorized discharges during the past year and their causes and a report of any corrective actions taken as a result of the unauthorized discharges reported pursuant to the Unauthorized Discharges section of this permit;

f. If the average annual flow in the previous calendar year exceeded 80 percent of the facility's 7.1 MGD design flow (5.68 MGD), or there have been capacity related overflows, the report shall include:

(1) Plans for further potential flow increases describing how the Permittee will maintain compliance with the flow limit and all other effluent limitations and conditions; and

(2) A calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year.

g. The Annual Operation and Maintenance Report on the implementation and results of the *WWTF Major Storm and Flood Events Plan* (beginning the first March 31 following submittal of this Plan) for the prior calendar year; and

h. The Annual Operation and Maintenance Report on the implementation and results of the *Sewer System Major Storm and Flood Events Plan* (beginning the first March 31 following submittal of this Plan) for the prior calendar year.

D. ALTERNATE POWER SOURCE

In order to maintain compliance with the terms and conditions of this permit, the Permittee shall provide an alternative power source(s) sufficient to operate the portion of the publicly owned treatment works it owns and operates, as defined in Part II.E.1 of this permit.

E. INDUSTRIAL USERS

1. The Permittee shall submit to EPA and the State the name of any Industrial User (IU) subject to Categorical Pretreatment Standards under 40 CFR § 403.6 and 40 CFR chapter I, subchapter N (Parts 405-415, 417-430, 432, 447, 449-451, 454, 455, 457-461, 463-469, and 471 as amended) who commences discharge to the facility after the effective date of this permit.

This reporting requirement also applies to any other IU who is classified as a Significant Industrial User which discharges an average of 25,000 gallons per day or more of process wastewater into the facility (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastewater which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the facility; or is designated as such by the Control Authority as defined in 40 CFR § 403.3(f) on the basis that the industrial user has a reasonable potential to adversely affect the wastewater treatment facility's operation, or for violating any pretreatment standard or requirement (in accordance with 40 CFR § 403.8(f)(6)).

2. In the event that the Permittee receives originals of reports (baseline monitoring reports, 90-day compliance reports, periodic reports on continued compliance, etc.) from industrial users subject to Categorical Pretreatment Standards under 40 CFR § 403.6 and 40 CFR chapter I, subchapter N (Parts 405-415, 417-430, 432-447, 449-451, 454, 455, 457-461, 463-469, and 471 as amended), or from a Significant Industrial User, the Permittee shall forward the originals of these reports within ninety (90) days of their receipt to EPA, and copy the State.

3. In accordance with 40 CFR § 122.44(j)(1) the Permittee must identify, in terms of character and volume, any SIUs discharging into the POTW or facility subject to Pretreatment Standards under section 307(b) of CWA and 40 CFR Part 403. SIUs information shall be updated at a minimum of once per year or at that frequency necessary to ensure that all SIUs are properly permitted and/or controlled. The records shall be maintained and updated as necessary.

4. Beginning the first full calendar year after the effective date of the permit, the Permittee shall commence annual sampling of the following types of industrial discharges into the POTW:

    - Commercial Car Washes
    - Platers/Metal Finishers
    - Paper and Packaging Manufacturers
    - Tanneries and Leather/Fabric/Carpet Treaters
    - Manufacturers of Parts with Polytetrafluoroethylene (PTFE) or teflon type coatings (i.e. bearings)
    - Landfill Leachate
    - Centralized Waste Treaters
    - Known or Suspected PFAS Contaminated Sites
    - Fire Fighting Training Facilities
    - Airports
    - Any Other Known or Expected Sources of PFAS

    Sampling shall be conducted using Method 1633 for the PFAS analytes listed in Attachment B. The industrial discharges sampled and the sampling results shall be summarized and submitted to EPA and copy the state as an electronic attachment to the March discharge monitoring report due April 15 of the calendar year following the testing.

F. SLUDGE CONDITIONS

1. The Permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices, including EPA regulations promulgated at 40 CFR § 503, which prescribe "Standards for the Use or Disposal of Sewage Sludge" pursuant to § 405(d) of the CWA, 33 U.S.C. § 1345(d).

2. If both state and federal requirements apply to the Permittee's sludge use and/or disposal practices, the Permittee shall comply with the more stringent of the applicable requirements.

3. The requirements and technical standards of 40 CFR Part 503 apply to the following sludge use or disposal practices:

    a. Land application - the use of sewage sludge to condition or fertilize the soil

    b. Surface disposal - the placement of sewage sludge in a sludge only landfill

    c. Sewage sludge incineration in a sludge only incinerator

4. The requirements of 40 CFR Part 503 do not apply to facilities which dispose of sludge in a municipal solid waste landfill. 40 CFR § 503.4. These requirements also do not apply to facilities which do not use or dispose of sewage sludge during the life of the permit but rather treat the sludge (e.g., lagoons, reed beds), or are otherwise excluded under 40 CFR § 503.6.

5. The 40 CFR Part 503 requirements include the following elements:

    a. General requirements

    b. Pollutant limitations

    c. Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)

    d. Management practices

    e. Record keeping

    f. Monitoring

    g. Reporting

    Which of the 40 CFR Part 503 requirements apply to the Permittee will depend upon the use or disposal practice followed and upon the quality of material produced by a facility. The EPA Region 1 guidance document, "EPA Region 1 - NPDES Permit Sludge Compliance Guidance" (November 4, 1999), may be used by the Permittee to assist it in determining the applicable requirements.

6. The sludge shall be monitored for pollutant concentrations (all Part 503 methods) and pathogen reduction and vector attraction reduction (land application and surface disposal) at the following frequency. This frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year, as follows:

less than 290	1/ year
290 to less than 1,500	1 /quarter
1,500 to less than 15,000	6 /year
15,000 +	1 /month

Sampling of the sewage sludge shall use the procedures detailed in 40 CFR § 503.8.

7. Under 40 CFR § 503.9(r), the Permittee is a "person who prepares sewage sludge" because it "is … the person who generates sewage sludge during the treatment of domestic sewage in a treatment works …." If the Permittee contracts with another "person who prepares sewage sludge" under 40 CFR § 503.9(r) – i.e., with "a person who derives a material from sewage sludge" – for use or disposal of the sludge, then compliance with Part 503 requirements is the responsibility of the contractor engaged for that purpose. If the Permittee does not engage a "person who prepares sewage sludge," as defined in 40 CFR § 503.9(r), for use or disposal, then the Permittee remains responsible to ensure that the applicable requirements in Part 503 are met. 40 CFR § 503.7. If the ultimate use or disposal method is land application, the Permittee is responsible for providing the person receiving the sludge with notice and necessary information to comply with the requirements of 40 CFR § 503 Subpart B.

8. The Permittee shall submit an annual report containing the information specified in the 40 CFR Part 503 requirements (§ 503.18 (land application), § 503.28 (surface disposal), or § 503.48 (incineration)) by February 19 (see also "EPA Region 1 - NPDES Permit Sludge Compliance Guidance"). Reports shall be submitted electronically using EPA's Electronic Reporting tool ("NeT") (see "Reporting Requirements" section below).

G. SPECIAL CONDITIONS

1. Nitrogen Optimization Requirement

The Permittee shall continue to optimize the treatment facility operations relative to total nitrogen (TN) removal through measures and/or operational changes designed to enhance the removal of nitrogen in order to minimize the annual average mass discharge of total nitrogen.

The Permittee shall submit an annual report to EPA and the State, by **February 1st** of each year, that summarizes activities related to optimizing nitrogen removal efficiencies, documents the annual nitrogen discharge load from the facility, and tracks trends relative to the previous calendar year and the previous five (5) calendar years. If, in any year, the treatment facility discharges of TN on an average annual basis have increased, the annual report shall include a detailed explanation of the reasons why TN discharges have increased, including any changes in influent flows/loads and any operational changes. The report shall include all supporting data.

H. REPORTING REQUIREMENTS

Unless otherwise specified in this permit, the Permittee shall submit reports, requests, and information and provide notices in the manner described in this section.

1. Submittal of DMRs Using NetDMR

   The Permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and the State electronically using NetDMR no later than the 15th day of the month. When the Permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to EPA or the State. NetDMR is accessible through EPA's Central Data Exchange at https://cdx.epa.gov/.

2. Submittal of Reports as NetDMR Attachments

   Unless otherwise specified in this permit, the Permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies. See Part I.H.6 for more information on State reporting. Because the due dates for reports described in this permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the report due date specified in this permit.

3. Submittal of Biosolids/Sewage Sludge Reports

   By February 19 of each year, the Permittee must electronically report their annual Biosolids/Sewage Sludge Report for the previous calendar year using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which is accessible through EPA's Central Data Exchange at https://cdx.epa.gov/.

4. Submittal of Requests and Reports to EPA Water Division (WD)

   a. The following requests, reports, and information described in this permit shall be submitted to the NPDES Applications Coordinator in EPA Water Division (WD):

      (1) Transfer of permit notice;

      (2) Request for changes in sampling location;

      (3) Request for reduction in testing frequency;

      (4) Report on unacceptable dilution water / request for alternative dilution water for WET testing;

      (5) Report of new industrial user commencing discharge; and

(6) Report received from existing industrial user.

b. These reports, information, and requests shall be submitted to EPA WD electronically at R1NPDESReporting@epa.gov.

5. Submittal of Sewer Overflow and Bypass Reports and Notifications

The Permittee shall submit required reports and notifications under Part II.B.4.c, for bypasses, and Part II.D.1.e, for sanitary sewer overflows (SSOs) electronically using EPA's NPDES Electronic Reporting Tool ("NeT"), which will be accessible through EPA's Central Data Exchange at https://cdx.epa.gov/.

6. State Reporting

Duplicate signed copies of all WET test reports shall be submitted to the Massachusetts Department of Environmental Protection, Division of Watershed Management, at the following address:

Massachusetts Department of Environmental Protection
Bureau of Water Resources
Division of Watershed Management
8 New Bond Street
Worcester, Massachusetts 01606

7. Verbal Reports and Verbal Notifications

a. Any verbal reports or verbal notifications, if required in Parts I and/or II of this permit, shall be made to both EPA and to the State. This includes verbal reports and notifications which require reporting within 24 hours (e.g., Part II.B.4.c.(2), Part II.B.5.c.(3), and Part II.D.1.e).

b. Verbal reports and verbal notifications shall be made to:

EPA ECAD at 617-918-1510
and
MassDEP Emergency Response at 888-304-1133

I. STATE 401 CERTIFICATION CONDITIONS

1. This Permit is in the process of receiving state water quality certification issued by the State under § 401(a) of the CWA and 40 CFR § 124.53. EPA will incorporate appropriate State water quality certification requirements (if any) into the Final Permit.

ATTACHMENT A

USEPA REGION 1 FRESHWATER ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

The permittee shall conduct acceptable acute toxicity tests in accordance with the appropriate test protocols described below:

- **Daphnid (Ceriodaphnia dubia) definitive 48 hour test.**
- **Fathead Minnow (Pimephales promelas) definitive 48 hour test.**

Acute toxicity test data shall be reported as outlined in Section VIII.

II. METHODS

The permittee shall use 40 CFR Part 136 methods. Methods and guidance may be found at:

http://water.epa.gov/scitech/methods/cwa/wet/disk2_index.cfm

The permittee shall also meet the sampling, analysis and reporting requirements included in this protocol. This protocol defines more specific requirements while still being consistent with the Part 136 methods. If, due to modifications of Part 136, there are conflicting requirements between the Part 136 method and this protocol, the permittee shall comply with the requirements of the Part 136 method.

III. SAMPLE COLLECTION

A discharge sample shall be collected. Aliquots shall be split from the sample, containerized and preserved (as per 40 CFR Part 136) for chemical and physical analyses required. The remaining sample shall be measured for total residual chlorine and dechlorinated (if detected) in the laboratory using sodium thiosulfate for subsequent toxicity testing. (Note that EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection.) Grab samples must be used for pH, temperature, and total residual chlorine (as per 40 CFR Part 122.21).

Standard Methods for the Examination of Water and Wastewater describes dechlorination of samples (APHA, 1992). Dechlorination can be achieved using a ratio of 6.7 mg/L anhydrous sodium thiosulfate to reduce 1.0 mg/L chlorine. If dechlorination is necessary, a thiosulfate control (maximum amount of thiosulfate in lab control or receiving water) must also be run in the WET test.

All samples held overnight shall be refrigerated at 1- 6^{o}C.

IV. DILUTION WATER

A grab sample of dilution water used for acute toxicity testing shall be collected from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. In the case where an alternate dilution water has been agreed upon an additional receiving water control (0% effluent) must also be tested.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternate standard dilution water of known quality with a hardness, pH, conductivity, alkalinity, organic carbon, and total suspended solids similar to that of the receiving water may be substituted **AFTER RECEIVING WRITTEN APPROVAL FROM THE PERMIT ISSUING AGENCY(S)**. Written requests for use of an alternate dilution water should be mailed with supporting documentation to the following address:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency-New England
5 Post Office Sq., Suite 100 (OEP06-5)
Boston, MA 02109-3912

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
5 Post Office Sq., Suite 100 (OES04-4)
Boston, MA 02109-3912

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at http://www.epa.gov/region1/enforcement/water/dmr.html *for further important details on alternate dilution water substitution requests.*

It may prove beneficial to have the proposed dilution water source screened for suitability prior to toxicity testing. EPA strongly urges that screening be done prior to set up of a full definitive toxicity test any time there is question about the dilution water's ability to support acceptable performance as outlined in the 'test acceptability' section of the protocol.

V. TEST CONDITIONS

The following tables summarize the accepted daphnid and fathead minnow toxicity test conditions and test acceptability criteria:

EPA NEW ENGLAND EFFLUENT TOXICITY TEST CONDITIONS FOR THE DAPHNID, CERIODAPHNIA DUBIA 48 HOUR ACUTE TESTS[1]

1.	Test type	Static, non-renewal
2.	Temperature (^{o}C)	20 ± 1^{o}C or 25 ± 1^{o}C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hour light, 8 hour dark
5.	Test chamber size	Minimum 30 ml
6.	Test solution volume	Minimum 15 ml
7.	Age of test organisms	1-24 hours (neonates)
8.	No. of daphnids per test chamber	5
9.	No. of replicate test chambers per treatment	4
10.	Total no. daphnids per test concentration	20
11.	Feeding regime	As per manual, lightly feed YCT and Selenastrum to newly released organisms while holding prior to initiating test
12.	Aeration	None
13.	Dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^{R} or equivalent deionized water and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	≥ 0.5, must bracket the permitted RWC
15.	Number of dilutions	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution

		series.
16.	Effect measured	Mortality-no movement of body or appendages on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must first be used within 36 hours of collection.
19.	Sample volume required	Minimum 1 liter

Footnotes:

1. Adapted from EPA-821-R-02-012.
2. Standard prepared dilution water must have hardness requirements to generally reflect the characteristics of the receiving water.

EPA NEW ENGLAND TEST CONDITIONS FOR THE FATHEAD MINNOW (PIMEPHALES PROMELAS) 48 HOUR ACUTE TEST[1]

1.	Test Type	Static, non-renewal
2.	Temperature (^{o}C)	20 $\pm$ 1 ^{o} C or 25 $\pm$ 1^{o}C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hr light, 8 hr dark
5.	Size of test vessels	250 mL minimum
6.	Volume of test solution	Minimum 200 mL/replicate
7.	Age of fish	1-14 days old and age within 24 hrs of each other
8.	No. of fish per chamber	10
9.	No. of replicate test vessels per treatment	4
10.	Total no. organisms per concentration	40
11.	Feeding regime	As per manual, lightly feed test age larvae using concentrated brine shrimp nauplii while holding prior to initiating test
12.	Aeration	None, unless dissolved oxygen (D.O.) concentration falls below 4.0 mg/L, at which time gentle single bubble aeration should be started at a rate of less than 100 bubbles/min. (Routine D.O. check is recommended.)
13.	dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^{R} or equivalent deionized and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	$\geq$ 0.5, must bracket the permitted RWC

15.	Number of dilutions	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
16.	Effect measured	Mortality-no movement on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples are used within 36 hours of collection.
19.	Sample volume required	Minimum 2 liters

Footnotes:

1. Adapted from EPA-821-R-02-012
2. Standard dilution water must have hardness requirements to generally reflect characteristics of the receiving water.

VI. CHEMICAL ANALYSIS

At the beginning of a static acute toxicity test, pH, conductivity, total residual chlorine, oxygen, hardness, alkalinity and temperature must be measured in the highest effluent concentration and the dilution water. Dissolved oxygen, pH and temperature are also measured at 24 and 48 hour intervals in all dilutions. The following chemical analyses shall be performed on the 100 percent effluent sample and the upstream water sample for each sampling event.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3]	x		0.02
Alkalinity	x	x	2.0
pH	x	x	--
Specific Conductance	x	x	--
Total Solids	x		--
Total Dissolved Solids	x		--
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
Total Metals			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     - Method 2340B (hardness by calculation)
     - Method 2340C (titration)
2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     - Method 4500-CL E Low Level Amperometric Titration
     - Method 4500-CL G DPD Colorimetric Method
3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing.

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

- Probit Method
- Spearman-Karber
- Trimmed Spearman-Karber
- Graphical

See the flow chart in Figure 6 on p. 73 of EPA-821-R-02-012 for appropriate method to use on a given data set.

No Observed Acute Effect Level (NOAEL)

See the flow chart in Figure 13 on p. 87 of EPA-821-R-02-012.

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

- Description of sample collection procedures, site description
- Names of individuals collecting and transporting samples, times and dates of sample collection and analysis on chain-of-custody
- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests; light and temperature regime; other information on test conditions if different than procedures recommended. Reference toxicant test data should be included.
- All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)
- Raw data and bench sheets.
- Provide a description of dechlorination procedures (as applicable).
- Any other observations or test conditions affecting test outcome.

Attachment B: PFAS Analyte List

Target Analyte Name	Abbreviation	CAS Number
Perfluoroalkyl carboxylic acids		
Perfluorobutanoic acid	PFBA	375-22-4
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluoroheptanoic acid	PFHpA	375-85-9
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluoroundecanoic acid	PFUnA	2058-94-8
Perfluorododecanoic acid	PFDoA	307-55-1
Perfluorotridecanoic acid	PFTrDA	72629-94-8
Perfluorotetradecanoic acid	PFTeDA	376-06-7
Perfluoroalkyl sulfonic acids		
Acid Form		
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluoropentansulfonic acid	PFPeS	2706-91-4
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluoroheptanesulfonic acid	PFHpS	375-92-8
Perfluorooctanesulfonic acid	PFOS	1763-23-1
Perfluorononanesulfonic acid	PFNS	68259-12-1
Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Fluorotelomer sulfonic acids		
1*H*,1*H*, 2*H*, 2*H*-Perfluorohexane sulfonic acid	4:2FTS	757124-72-4
1*H*,1*H*, 2*H*, 2*H*-Perfluorooctane sulfonic acid	6:2FTS	27619-97-2
1*H*,1*H*, 2*H*, 2*H*-Perfluorodecane sulfonic acid	8:2FTS	39108-34-4
Perfluorooctane sulfonamides		
Perfluorooctanesulfonamide	PFOSA	754-91-6
N-methyl perfluorooctanesulfonamide	NMeFOSA	31506-32-8
N-ethyl perfluorooctanesulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamidoacetic acids		
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols		
N-methyl perfluorooctanesulfonamidoethanol	NMeFOSE	24448-09-7
N-ethyl perfluorooctanesulfonamidoethanol	NEtFOSE	1691-99-2
Per- and Polyfluoroether carboxylic acids		
Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
4,8-Dioxa-3*H*-perfluorononanoic acid	ADONA	919005-14-4
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6

Target Analyte Name	Abbreviation	CAS Number
Ether sulfonic acids		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS	756426-58-1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
Fluorotelomer carboxylic acids		
3-Perfluoropropyl propanoic acid	3:3FTCA	356-02-5
2H,*2H*,*3H*,*3H*-Perfluorooctanoic acid	5:3FTCA	914637-49-3
3-Perfluoroheptyl propanoic acid	7:3FTCA	812-70-4

NPDES PART II STANDARD CONDITIONS
(April 26, 2018)[1]

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[1] Updated July 17, 2018 to fix typographical errors.

A. GENERAL REQUIREMENTS

1. Duty to Comply

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA or Act) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

a. The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

b. Penalties for Violations of Permit Conditions: The Director will adjust the civil and administrative penalties listed below in accordance with the Civil Monetary Penalty Inflation Adjustment Rule (83 Fed. Reg. 1190-1194 (January 10, 2018) and the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note. See Pub. L.114-74, Section 701 (Nov. 2, 2015)). These requirements help ensure that EPA penalties keep pace with inflation. Under the above-cited 2015 amendments to inflationary adjustment law, EPA must review its statutory civil penalties each year and adjust them as necessary.

(1) Criminal Penalties

(a) *Negligent Violations.* The CWA provides that any person who negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to criminal penalties of not less than $2,500 nor more than $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation or by imprisonment of not more than 2 years, or both.

(b) *Knowing Violations.* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both.

(c) *Knowing Endangerment.* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 303, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he or she is placing another person in imminent danger of death or serious bodily injury shall upon conviction be subject to a fine of not more than $250,000 or by imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing

endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

(d) *False Statement.* The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both. The Act further provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

(2) *Civil Penalties*. The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act, the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

(3) *Administrative Penalties*. The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty as follows:

(a) *Class I Penalty.* Not to exceed the maximum amounts authorized by Section 309(g)(2)(A) of the Act, the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

(b) *Class II Penalty.* Not to exceed the maximum amounts authorized by Section 309(g)(2)(B) of the Act the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

2. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit

condition.

3. Duty to Provide Information

The Permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

4. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from responsibilities, liabilities or penalties to which the Permittee is or may be subject under Section 311 of the CWA, or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

5. Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

6. Confidentiality of Information

a. In accordance with 40 C.F.R. Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 C.F.R. Part 2 (Public Information).

b. Claims of confidentiality for the following information will be denied:

(1) The name and address of any permit applicant or Permittee;
(2) Permit applications, permits, and effluent data.

c. Information required by NPDES application forms provided by the Director under 40 C.F.R. § 122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

7. Duty to Reapply

If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must apply for and obtain a new permit. The Permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Director. (The Director shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

8. State Authorities

Nothing in Parts 122, 123, or 124 precludes more stringent State regulation of any activity

covered by the regulations in 40 C.F.R. Parts 122, 123, and 124, whether or not under an approved State program.

9. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The Permittee shall at all times 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 this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a Permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Need to Halt or Reduce Not a Defense

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Duty to Mitigate

The Permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

4. Bypass

a. Definitions

(1) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

(2) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. *Bypass not exceeding limitations.* The Permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (c) and (d) of this Section.

c. Notice

(1) *Anticipated bypass*. If the Permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass. As of December 21, 2020 all notices submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or if required to do so by state law.

(2) *Unanticipated bypass*. The Permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (24-hour notice). As of December 21, 2020 all notices submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or required to do so by law.

d. *Prohibition of bypass.*

(1) Bypass is prohibited, and the Director may take enforcement action against a Permittee for bypass, unless:

(a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and

(c) The Permittee submitted notices as required under paragraph 4.c of this Section.

(2) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 4.d of this Section.

5. Upset

a. *Definition*. *Upset* means an exceptional incident in which there is an unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or

improper operation.

b. *Effect of an upset.* An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph B.5.c. of this Section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. *Conditions necessary for a demonstration of upset.* A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the Permittee can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated; and
(3) The Permittee submitted notice of the upset as required in paragraph D.1.e.2.b. (24-hour notice).
(4) The Permittee complied with any remedial measures required under B.3. above.

d. *Burden of proof.* In any enforcement proceeding the Permittee seeking to establish the occurrence of an upset has the burden of proof.

C. MONITORING REQUIREMENTS

1. Monitoring and Records

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

b. Except for records of monitoring information required by this permit related to the Permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 C.F.R. § 503), the Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

c. Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;
(2) The individual(s) who performed the sampling or measurements;
(3) The date(s) analyses were performed;
(4) The individual(s) who performed the analyses;
(5) The analytical techniques or methods used; and
(6) The results of such analyses.

d. Monitoring must be conducted according to test procedures approved under 40 C.F.R. § 136 unless another method is required under 40 C.F.R. Subchapters N or O.

e. The Clean Water Act provides that any person who falsifies, tampers with, or

knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

The Permittee shall allow the Director, or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

a. Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

D. REPORTING REQUIREMENTS

1. Reporting Requirements

a. *Planned Changes*. The Permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 C.F.R. § 122.29(b); or

(2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements at 40 C.F.R. § 122.42(a)(1).

(3) The alteration or addition results in a significant change in the Permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

b. *Anticipated noncompliance*. The Permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

c. *Transfers.* This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the Clean Water Act. *See* 40 C.F.R. § 122.61; in some cases, modification or revocation and reissuance is mandatory.

d. *Monitoring reports*. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices. As of December 21, 2016 all reports and forms submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or if required to do so by State law.

(2) If the Permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 C.F.R. § 136, or another method required for an industry-specific waste stream under 40 C.F.R. Subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

e. *Twenty-four hour reporting.*

(1) The Permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Permittee becomes aware of the circumstances. A written report shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather. As of December 21, 2020 all

reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to electronically submit reports related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section by a particular permit or if required to do so by state law. The Director may also require Permittees to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section.

(2) The following shall be included as information which must be reported within 24 hours under this paragraph.

(a) Any unanticipated bypass which exceeds any effluent limitation in the permit. *See* 40 C.F.R. § 122.41(g).
(b) Any upset which exceeds any effluent limitation in the permit.
(c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours. *See* 40 C.F.R. § 122.44(g).

(3) The Director may waive the written report on a case-by-case basis for reports under paragraph D.1.e. of this Section if the oral report has been received within 24 hours.

f. *Compliance Schedules.* Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

g. *Other noncompliance.* The Permittee shall report all instances of noncompliance not reported under paragraphs D.1.d., D.1.e., and D.1.f. of this Section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph D.1.e. of this Section. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in paragraph D.1.e. and the applicable required data in Appendix A to 40 C.F.R. Part 127. As of December 21, 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), §122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to electronically submit reports related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section by a particular permit or if required to do so by state law. The Director may also require Permittees to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this Section.

h. *Other information.* Where the Permittee becomes aware that it failed to submit any

relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

i. *Identification of the initial recipient for NPDES electronic reporting data*. The owner, operator, or the duly authorized representative of an NPDES-regulated entity is required to electronically submit the required NPDES information (as specified in Appendix A to 40 C.F.R. Part 127) to the appropriate initial recipient, as determined by EPA, and as defined in 40 C.F.R. § 127.2(b). EPA will identify and publish the list of initial recipients on its Web site and in the FEDERAL REGISTER, by state and by NPDES data group (see 40 C.F.R. § 127.2(c) of this Chapter). EPA will update and maintain this listing.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Director shall be signed and certified. *See* 40 C.F.R. §122.22.

b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under paragraph A.6. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Director. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

E. DEFINITIONS AND ABBREVIATIONS

1. General Definitions

For more definitions related to sludge use and disposal requirements, see EPA Region 1's NPDES Permit Sludge Compliance Guidance document (4 November 1999, modified to add regulatory definitions, April 2018).

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

Applicable standards and limitations means all, State, interstate, and federal standards and limitations to which a "discharge," a "sewage sludge use or disposal practice," or a related activity is subject under the CWA, including "effluent limitations," water quality standards, standards of performance, toxic effluent standards or prohibitions, "best management practices," pretreatment standards, and "standards for sewage sludge use or disposal" under Sections 301, 302, 303, 304, 306, 307, 308, 403 and 405 of the CWA.

Application means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in

"approved States," including any approved modifications or revisions.

Approved program or *approved State* means a State or interstate program which has been approved or authorized by EPA under Part 123.

Average monthly discharge limitation means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

Average weekly discharge limitation means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

Best Management Practices ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States." BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Bypass see B.4.a.1 above.

C-NOEC or *"Chronic (Long-term Exposure Test) – No Observed Effect Concentration" means* the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specified time of observation.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 C.F.R. § 501.2, required to have an approved pretreatment program under 40 C.F.R. § 403.8 (a) (including any POTW located in a State that has elected to assume local program responsibilities pursuant to 40 C.F.R. § 403.10 (e)) and any treatment works treating domestic sewage, as defined in 40 C.F.R. § 122.2, classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved State programs, the Regional Administrator in conjunction with the State Director, because of the potential for its sewage sludge use or disposal practice to affect public health and the environment adversely.

Contiguous zone means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

Continuous discharge means a "discharge" which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or similar activities.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483and Public Law 97-117, 33 U.S.C. 1251 *et seq*.

CWA and regulations means the Clean Water Act (CWA) and applicable regulations promulgated thereunder. In the case of an approved State program, it includes State program requirements.

Daily Discharge means the "discharge of a pollutant" measured during a calendar day or any

other 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Direct Discharge means the "discharge of a pollutant."

Director means the Regional Administrator or an authorized representative. In the case of a permit also issued under Massachusetts' authority, it also refers to the Director of the Division of Watershed Management, Department of Environmental Protection, Commonwealth of Massachusetts.

Discharge

(a) When used without qualification, *discharge* means the "discharge of a pollutant."

(b) As used in the definitions for "interference" and "pass through," *discharge* means the introduction of pollutants into a POTW from any non-domestic source regulated under Section 307(b), (c) or (d) of the Act.

Discharge Monitoring Report ("DMR") means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by Permittees. DMRs must be used by "approved States" as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Discharge of a pollutant means:

(a) Any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source," or

(b) Any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation.

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any "indirect discharger."

Effluent limitation means any restriction imposed by the Director on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States," the waters of the "contiguous zone," or the ocean.

Effluent limitation guidelines means a regulation published by the Administrator under section 304(b) of CWA to adopt or revise "effluent limitations."

Environmental Protection Agency ("EPA") means the United States Environmental Protection

Agency.

Grab Sample means an individual sample collected in a period of less than 15 minutes.

Hazardous substance means any substance designated under 40 C.F.R. Part 116 pursuant to Section 311 of CWA.

Incineration is the combustion of organic matter and inorganic matter in sewage sludge by high temperatures in an enclosed device.

Indirect discharger means a nondomestic discharger introducing "pollutants" to a "publicly owned treatment works."

Interference means a discharge (see definition above) which, alone or in conjunction with a discharge or discharges from other sources, both:

(a) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

(b) Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile.

Land application is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

Land application unit means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for agricultural purposes or for treatment and disposal.

LC_{50} means the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC_{50} = 100% is defined as a sample of undiluted effluent.

Maximum daily discharge limitation means the highest allowable "daily discharge."

Municipal solid waste landfill (MSWLF) unit means a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 C.F.R. § 257.2. A MSWLF unit also may receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, very small quantity generator waste and industrial solid waste. Such a landfill may be

publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion. A construction and demolition landfill that receives residential lead-based paint waste and does not receive any other household waste is not a MSWLF unit.

Municipality

(a) When used without qualification *municipality* means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of CWA.

(b) As related to sludge use and disposal, *municipality* means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal Agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management Agency under Section 208 of the CWA, as amended. The definition includes a special district created under State law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in Section 201 (e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use or disposal of sewage sludge.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA. The term includes an "approved program."

New Discharger means any building, structure, facility, or installation:

(a) From which there is or may be a "discharge of pollutants;"

(b) That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979;

(c) Which is not a "new source;" and

(d) Which has never received a finally effective NPDES permit for discharges at that "site."

This definition includes an "indirect discharger" which commences discharging into "waters of the United States" after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a "site" for which it does not have a permit; and any offshore or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a "site" under EPA's permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the Director in the issuance of a final permit to be in an area of biological concern. In determining whether an area is an area of biological concern, the Director shall consider the factors specified in 40 C.F.R. §§ 125.122 (a) (1) through (10).

An offshore or coastal mobile exploratory drilling rig or coastal mobile developmental drilling rig will be considered a "new discharger" only for the duration of its discharge in an area of biological concern.

New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced:

(a) After promulgation of standards of performance under Section 306 of CWA which are applicable to such source, or

(b) After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NPDES means "National Pollutant Discharge Elimination System."

Owner or operator means the owner or operator of any "facility or activity" subject to regulation under the NPDES programs.

Pass through means a Discharge (see definition above) which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

Permit means an authorization, license, or equivalent control document issued by EPA or an "approved State" to implement the requirements of Parts 122, 123, and 124. "Permit" includes an NPDES "general permit" (40 C.F.R § 122.28). "Permit" does not include any permit which has not yet been the subject of final agency action, such as a "draft permit" or "proposed permit."

Person means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

pH means the logarithm of the reciprocal of the hydrogen ion concentration measured at 25° Centigrade or measured at another temperature and then converted to an equivalent value at 25° Centigrade.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (see 40 C.F.R. § 122.3).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials

(except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 *et seq*.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

(b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by the authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

Primary industry category means any industry category listed in the NRDC settlement agreement (*Natural Resources Defense Council et al. v. Train*, 8 E.R.C. 2120 (D.D.C. 1976), *modified* 12 E.R.C. 1833 (D.D.C. 1979)); also listed in Appendix A of 40 C.F.R. Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operator is not the operator of the treatment works and (b) not a "POTW."

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly owned treatment works (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 504(4) of the Act). This definition 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.

Regional Administrator means the Regional Administrator, EPA, Region I, Boston, Massachusetts.

Secondary industry category means any industry which is not a "primary industry category."

Septage means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

Sewage Sludge means any solid, semi-solid, or liquid residue removed during the treatment of municipal waste water or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced waste water treatment, scum, septage, portable toilet pumpings, type III marine sanitation device pumpings (33 C.F.R. Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

Sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does

not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 C.F.R. § 122.2.

Sewage sludge use or disposal practice means the collection, storage, treatment, transportation, processing, monitoring, use, or disposal of sewage sludge.

Significant materials includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substance designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.

Significant spills includes, but is not limited to, releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the CWA (see 40 C.F.R. §§ 110.10 and 117.21) or Section 102 of CERCLA (*see* 40 C.F.R. § 302.4).

Sludge-only facility means any "treatment works treating domestic sewage" whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to section 405(d) of the CWA, and is required to obtain a permit under 40 C.F.R. § 122.1(b)(2).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, the Trust Territory of the Pacific Islands, or an Indian Tribe as defined in the regulations which meets the requirements of 40 C.F.R. § 123.31.

Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm water discharge associated with industrial activity means the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant.

Surface disposal site is an area of land that contains one or more active sewage sludge units.

Toxic pollutant means any pollutant listed as toxic under Section 307(a)(1) or, in the case of "sludge use or disposal practices," any pollutant identified in regulations implementing Section 405(d) of the CWA.

Treatment works treating domestic sewage means a POTW or any other sewage sludge or waste water treatment devices or systems, regardless of ownership (including federal facilities), used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated for the disposal of sewage sludge. This definition does not include septic tanks or similar devices.

For purposes of this definition, "domestic sewage" includes waste and waste water from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Director may designate any person subject to the standards for sewage sludge use and

disposal in 40 C.F.R. Part 503 as a "treatment works treating domestic sewage," where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 C.F.R. Part 503.

Upset see B.5.a. above.

Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

Waste pile or *pile* means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

Waters of the United States or waters of the U.S. means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) All interstate waters, including interstate "wetlands;"

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

    (1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;

    (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

    (3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 C.F.R. § 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland.

Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Wetlands means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole Effluent Toxicity (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test.

*Zone of Initial Dilution (*ZID) means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, provided that the ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards.

2. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl_2	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)
TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont.	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen

kg/day	Kilograms per day
lbs/day	Pounds per day
mg/L	Milligram(s) per liter
mL/L	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
Surfactant	Surface-active agent
Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
µg/L	Microgram(s) per liter
WET	"Whole effluent toxicity"
ZID	Zone of Initial Dilution

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: MA0100218

PUBLIC NOTICE START AND END DATES: March 30, 2023 – April 28, 2023

NAME AND MAILING ADDRESS OF APPLICANT:

Town of Amherst Department of Public Works
586 South Pleasant Street,
Amherst, Massachusetts 01002

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Amherst Wastewater Treatment Plant
100 Mullins Way
Hadley, Massachusetts 01035

RECEIVING WATER AND CLASSIFICATION:

Connecticut River (MA34-04)
Connecticut River Watershed
Class B - Warm Water Fishery and CSO

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Appendices

1.0 Proposed Action

The above-named applicant (the Permittee) has applied to the U.S. Environmental Protection Agency (EPA) for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge from the Amherst Wastewater Treatment Plant (the Facility) into the Connecticut River.

The permit currently in effect was issued on June 26, 2012 with an effective date of September 1, 2012 and expired on August 31, 2017 (the 2012 Permit). The Permittee filed an application for permit reissuance with EPA dated February 2, 2017, as required by 40 Code of Federal Regulations (CFR) § 122.6. Since the permit application was deemed timely and complete by EPA on November 18, 2017, the Facility's 2012 Permit has been administratively continued pursuant to 40 CFR § 122.6 and § 122.21(d).

2.0 Statutory and Regulatory Authority

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

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

2.1 Technology-Based Requirements

Technology-based 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 biochemical oxygen demand (BOD_5), total suspended solids (TSS) and pH. *See* 40 CFR Part 133.

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

2.2 Water Quality-Based Requirements

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

2.2.1 Water Quality Standards

The CWA requires that each state develop water quality standards (WQSs) for all water bodies within the State. *See* CWA § 303 and 40 CFR § 131.10-12. Generally, WQSs consist of three parts: 1) the designated use or uses assigned for a water body or a segment of a water body; 2) numeric or narrative water quality criteria sufficient to protect the assigned designated use(s); and 3) antidegradation requirements to ensure that once a use is attained it will not be degraded and to protect high quality and National resource waters. *See* CWA § 303(c)(2)(A) and 40 CFR § 131.12. The applicable State WQSs can be found in 314 of the Code of Massachusetts Regulations, Chapter 4 (314 CMR 4.00).

As a matter of state law, state WQSs specify different water body classifications, each of which is associated with certain designated uses and numeric and narrative water quality criteria. When using chemical-specific numeric criteria to develop permit limitations, acute and chronic aquatic life criteria and human health criteria are used and expressed in terms of maximum allowable in-stream pollutant concentrations. In general, aquatic-life acute criteria are considered applicable to daily time periods (maximum daily limit) and aquatic-life chronic criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific human health criteria are typically based on lifetime chronic exposure and, therefore, are typically applicable to average monthly limits.

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

2.2.2 Antidegradation

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

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

This permit is being reissued with effluent limitations sufficiently stringent to satisfy the State's antidegradation requirements, including the protection of the existing uses of the receiving water.

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

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

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

For impaired waters where a TMDL has been developed for a particular pollutant and the TMDL includes a waste load allocation (WLA) for a NPDES permitted discharge, the effluent limitation

in the permit must be "consistent with the assumptions and requirements of any available WLA". 40 CFR § 122.44(d)(1)(vii)(B).

2.2.4 Reasonable Potential

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

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

2.2.5 State Certification

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate the State WQSs, the State waives, or is deemed to have waived, its right to certify. *See* 33 U.S.C. § 1341(a)(1). Regulations governing state certification are set forth in 40 CFR § 124.53 and § 124.55. EPA has requested permit certification by the State pursuant to 40 CFR § 124.53 and expects that the Draft Permit will be certified.

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

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

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

2.3 Effluent Flow Requirements

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

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

The limitation on wastewater effluent flow is within EPA's authority to condition a permit to carry out the objectives of the Act. *See* CWA §§ 402(a)(2) and 301(b)(1)(C); 40 CFR §§ 122.4(a) and (d), 122.43 and 122.44(d). A condition on the discharge designed to ensure the WQBEL and reasonable potential calculations account for "worst case" conditions is encompassed by the references to "condition" and "limitations" in CWA §§ 402 and 301 and

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

implementing regulations, as they are designed to assure compliance with applicable water quality regulations, including antidegradation. Regulating the quantity of pollutants in the discharge through a restriction on the quantity of wastewater effluent is consistent with the overall structure and purposes of the CWA.

In addition, as provided in Part II.B.1 of this permit and 40 CFR § 122.41(e), the Permittee is required to properly operate and maintain all facilities and systems of treatment and control. Operating the facilities wastewater treatment systems as designed includes operating within the facility's design wastewater effluent flow.

EPA has also included the effluent flow limit in the permit to minimize or prevent infiltration and inflow (I/I) that may result in unauthorized discharges and compromise proper operation and maintenance of the facility. Improper operation and maintenance may result in non-compliance with permit effluent limitations. Infiltration is groundwater that enters the collection system through 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 CFR §§ 122.41(d), (e).

2.4 Monitoring and Reporting Requirements

2.4.1 Monitoring Requirements

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

The monitoring requirements included in this permit have been established to yield data representative of the Facility's discharges in accordance with CWA §§ 308(a) and 402(a)(2), and consistent with 40 CFR §§ 122.41(j), 122.43(a), 122.44(i) and 122.48. The Draft Permit specifies routine sampling and analysis requirements to provide ongoing, representative information on the levels of regulated constituents in the discharges. The monitoring program is needed to enable EPA and the State to assess the characteristics of the Facility's effluent, whether Facility discharges are complying with permit limits, and whether different permit conditions may be necessary in the future to ensure compliance with technology-based and water quality-based standards under the CWA. EPA and/or the State may use the results of the chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to

CWA § 304(a)(1), State water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including, but not limited to, those pollutants listed in Appendix D of 40 CFR Part 122.

NPDES permits require that the approved analytical procedures found in 40 CFR Part 136 be used for sampling and analysis unless other procedures are explicitly specified. Permits also include requirements necessary to comply with the *National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting Rule*.[2] This Rule requires that where EPA-approved methods exist, NPDES applicants must use sufficiently sensitive EPA-approved analytical methods when quantifying the presence of pollutants in a discharge. Further, the permitting authority must prescribe that only sufficiently sensitive EPA-approved methods be used for analyses of pollutants or pollutant parameters under the permit. The NPDES regulations at 40 CFR § 122.21(e)(3) (completeness), 40 CFR § 122.44(i)(1)(iv) (monitoring requirements) and/or as cross referenced at 40 CFR § 136.1(c) (applicability) indicate that an EPA-approved method is sufficiently sensitive where:

- The method minimum level[3] (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or

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

- The method has the lowest ML of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O for the measured pollutant or pollutant parameter.

2.4.2 Reporting Requirements

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

NetDMR is a national web-based tool enabling regulated CWA permittees to submit DMRs electronically via a secure internet application to EPA through the Environmental Information Exchange Network. NetDMR has eliminated the need for participants to mail in paper forms to EPA under 40 CFR §§ 122.41 and 403.12. NetDMR is accessible through EPA's Central Data

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

Exchange at https://cdx.epa.gov/. Further information about NetDMR can be found on EPA's NetDMR support portal webpage.[4]

With the use of NetDMR, the Permittee is no longer required to submit hard copies of DMRs and reports to EPA and the State unless otherwise specified in the Draft 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 Standard Conditions

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

2.6 Anti-backsliding

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

All proposed limitations in the Draft Permit are at least as stringent as limitations included in the 2012 Permit unless specific conditions exist to justify relaxation in accordance with CWA § 402(o) or § 303(d)(4). Discussion of any less stringent limitations and corresponding exceptions to anti-backsliding provisions is provided in the sections that follow.

3.0 Description of Facility and Discharge

3.1 Location and Type of Facility

The location of the treatment plant and Outfall 001 to the Connecticut River are shown in Figure 1. The longitude and latitude of the outfall is 72° 34' 30"W, 42° 24' 9.5"N.

The Amherst Wastewater Treatment Plant (WWTP) is a secondary treatment facility that is engaged in the collection and treatment of municipal and commercial wastewater. Currently, the Facility serves approximately 37,819 residents from the Town of Amherst, the University of Massachusetts Amherst, and Amherst College.

The Facility has a design flow of 7.1 MGD, the annual average daily flow reported in the application was 3.15 MGD for 2017. The system is a separate system with no combined sewers. Wastewater is comprised of mostly domestic sewage with some commercial sewage and some septage.

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

The Permittee does not have any major industries contributing industrial wastewater to the WWTP, and thus is not required to have a pretreatment program.

A quantitative description of the discharge in terms of effluent parameters, based on monitoring data submitted by the permittee from October 2017 through September 2022 is provided in Appendix A of this Fact Sheet.

3.1.1 Treatment Process Description

The Amherst WWTP is a conventional activated sludge facility. Wastewater flow is brought to the plant by gravity sewers from three regions: the University of Massachusetts, North Amherst, and Central/South Amherst. An onsite septage receiving station discharges septage waste to the head of the treatment plant. Plant influent passes through three Parshall flumes, then to preliminary treatment. The preliminary treatment consists of a channel grinder, screenings, and grit removal. Flow is then pumped to three primary clarifiers. Wastewater then flows to three aeration tanks, where biological treatment occurs. The mixture of wastewater and activated sludge, called the "mixed liquor", then flows by gravity to the three secondary sedimentation tanks for final settling. Wastewater is then discharged to the effluent wet well and pumped through a 2.8 mile force main to a 36 inch outfall. A chlorine diffuser doses the wastewater with chlorine soon after pumping. The required chlorine contact time for disinfection is assured by the 45-minute detention time in the effluent force main and outfall before discharge. The treated effluent is discharged into the main channel of the Connecticut River through diffusers.
A flow diagram of the Treatment Facility is shown in Figure 2.

The sludge which settles in the primary sedimentation basins is co-thickened via a gravity belt thickener with waste activated sludge from the secondary sedimentation basins to about 6% solids. The thickened sludge is transported offsite for incineration.

3.1.2 Collection System Description

The Amherst WWTP is served by a separate sewer system. 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.

4.0 Description of Receiving Water and Dilution

4.1 Receiving Water

The Amherst WWTF discharges through Outfall 001 into the Connecticut River, within Segment MA34-04. This segment is 34.5 miles in length and travels from the confluence with the Deerfield River, Greenfield/Montague/Deerfield to the Holyoke Dam, Holyoke/ South Hadley.

The Connecticut River is classified as a Class B warm water fishery with the CSO qualifier in the Massachusetts Regulations ("CMR") 4.06(6)(b). The MA WQS at 314 CMR 4.05(3)(b) state

that Class B, "*waters are designated as a 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(1)(d)6. and (6)(b) as a "Treated Water Supply", they shall be suitable as a source of public water supply with appropriate treatment. 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."*

The Connecticut River is listed in the final *Massachusetts Integrated List of Waters for the Clean Water Act 2018-2020 Reporting Cycle* ("303(d) List") as a Category 5 "Waters Requiring a TMDL".[5] The pollutants requiring a TMDL are *Escherichia coli (E. coli),* PCBs in fish tissue, and Water Chestnuts. To date, no TMDL has been developed for this segment for any of the listed impairments. The status of each designated use is presented in Table 1.

Table 1 – Summary of Designated Uses and Listing Status

Designated Use	**Status**
Aquatic Life	Impaired (Water Chestnut)
Aesthetics	Good
Primary Contact Recreation	Impaired (*E. Coli*)
Secondary Contact Recreation	Impaired (*E. Coli*)
Fish Consumption	Impaired (PCBs in fish tissue)

According to the *Connecticut River Water Quality Assessment Report*[6], this water body segment is attaining uses designated for aesthetics, while designated uses for primary and secondary contact recreation, aquatic life and fish consumption are impaired. Additionally, the Connecticut River is included under the Massachusetts Department of Public Health statewide fish consumption advisory for freshwater fish for PCBs in fish tissue.[7]

4.2 Ambient Data

A summary of the ambient data collected in the receiving water in the vicinity of the outfall that is referenced in this Fact Sheet can be found in Appendix A of this Fact Sheet.

4.3 Available Dilution

To ensure that discharges do not cause or contribute to violations of WQS under all expected conditions, WQBELs are derived assuming critical conditions for the receiving water[8]. The critical flow in rivers and streams is some measure of the low flow of that river or stream. Massachusetts WQSs require that:

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[5] *Massachusetts 2018-2020 Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle,* MassDEP Division of Watershed Management Watershed Planning Program, Worcester, Massachusetts, December 2019.

[6] https://mywaterway.epa.gov/waterbody-report/MA_DEP/MA34-04

[7] Freshwater Fish Consumption Advisory, Massachusetts Department of Public Health, Bureau of Environmental Health; https://www.mass.gov/lists/fish-consumption-advisories#advisories-

[8] EPA Permit Writer's Manual, Section 6.2.4

(a) for rivers and streams, the lowest condition is the lowest mean flow for seven consecutive days, recorded once in 10 years, or 7-day 10-year low flow (7Q10). *See* 314 CMR 4.03(3)(a); and

(b) in waters where flows are regulated by dams or similar structures, the lowest flow condition is the flow equaled or exceeded 99% of the time on a yearly basis, or another equivalent flow agreed upon by the State.

The lowest flow in this case is the 7Q10. *See* 314 CMR 4.03(3)(b). MassDEP calculated the 7Q10 for the Connecticut River based on data from the United States Geological Survey (USGS) low-flow frequency statistics for the nearest USGS gaging to the Facility along the Connecticut River (Station Number 01170500[9]) based on the last 30 years of streamflow data (4/1/1991 to 3/31/2021). MassDEP determined the estimated drainage area for the Facility using the USGS StreamStats for Massachusetts watershed delineation tool.[10] The dilution factor (DF) was calculated using the design flow (Q_e) and the critical flow in the receiving water upstream of the discharge (Q_s) as follows:

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

Where:

Q_s = 7Q10 in million gallons per day (MGD) = 1,244 MGD [1,926 cfs]
Q_e = Design flow in MGD = 7.1 MGD

Therefore:

DF = (1,244 MGD + 7.1 MGD) / 7.1 MGD = 176

EPA used this dilution factor (DF) in its quantitative derivation of WQBELs for pollutants in the Draft Permit.

5.0 Proposed Effluent Limitations and Conditions

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

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 its permit application, in monthly discharge monitoring reports (DMRs) and in WET test reports from October 2017 to September 2022 (the "review period") were used to identify the pollutants of concern and to evaluate the discharge during the effluent limitations

[9] USGS StreamStats National Data Collection Station Report for Station 01170500: https://streamstatsags.cr.usgs.gov/gagepages/html/01170500.htm.
[10] USGS StreamStats for Massachusetts Interactive Map: http://water.usgs.gov/osw/streamstats.massachusetts.html

development process (*See* **Appendix A)**.The reasonable potential analysis is included in Appendix B and results are discussed in the sections below.

5.1.1 Effluent Flow

The effluent flow limit in the 2012 Permit is 7.1 MGD, as a rolling annual average flow, based on the Facility's design flow. The DMR data during the review period shows a maximum rolling annual average flow of 4.9 MGD. There have been no exceedances of the flow limit during the review period.

The Draft Permit continues the 7.1 MGD flow limit from the 2012 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 Limits

Carbonaceous biochemical oxygen demand ("CBOD5") limitations may apply in lieu of BOD_5 limitations, as allowed under 40 CFR § 133.102(a)(4), in accordance with the secondary treatment regulations for POTWs found at 40 CFR § 133.102(a)(4)(i) and (ii). The $CBOD_5$ limits in the 2012 Permit were based on the secondary treatment standards; the average monthly limit is 25 mg/L and the average weekly limit is 40 mg/L.

The DMR data during the review period shows that there have been no violations of $CBOD_5$ concentration limits.

The Draft Permit proposes the same $CBOD_5$ concentration limits as in the 2012 Permit as no new WLAs have been established and there have been no changes to the secondary treatment standards. The monitoring frequency remains twice per week.

5.1.2.2 $CBOD_5$ Mass Limits

The mass-based $CBOD_5$ limits in the 2012 Permit of 1,480 lb/day (average monthly) and 2,369 lb/day (average weekly) were based on EPA's secondary treatment standards and the design flow of the Facility.

The DMR data from the review period shows that there have been no exceedances of the $CBOD_5$ mass limits.

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 = Design flow of the Facility
8.34 = Factor to convert effluent concentration in mg/L and design flow in MGD to lb/day

Limits:

Average Monthly: 25 mg/L * 7.1 MGD * 8.34 = 1,480 lb/day
Average Weekly: 40 mg/L * 7.1 MGD * 8.34 = 2,369 lb/day

The Draft Permit proposes the same $CBOD_5$ mass limits as in the 2012 Permit as no new WLAs have been established and there have been no changes to the secondary treatment standards. The monitoring frequency remains twice per week.

5.1.3 Total Suspended Solids (TSS)

5.1.3.1 TSS Concentration Limits

The TSS limits in the 2012 Permit were based on the secondary treatment standards in 40 CFR § 133.102; the average monthly limit is 30 mg/L and the average weekly limit is 45 mg/L. The DMR data during the review period shows that there have been no exceedances of TSS concentration limits.

The Draft Permit proposes the same TSS concentration limits as in the 2012 Permit as no new WLAs have been established and there have been no changes to the secondary treatment standards. The monitoring frequency remains twice per week.

5.1.3.2 TSS Mass Limits

The TSS mass-based limits of 1,776 lb/day (average monthly) and 2,665 lb/day (average weekly) were based on EPA's secondary treatment standards and the design flow of the Facility.

The DMR data from the review period shows that there have been no exceedances of the TSS mass-based limits.

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 = Design flow of the Facility
8.34 = Factor to convert effluent concentration in mg/L and design flow in MGD to lb/day

Limits:
Average Monthly: 30 mg/L * 7.1 MGD * 8.34 = 1,776 lb/day
Average Weekly: 45 mg/L * 7.1 MGD * 8.34 = 2,665 lb/day

The Draft Permit proposes the same TSS mass limits as in the 2012 Permit as no new WLAs have been established and there have been no changes to the secondary treatment standards. The monitoring frequency remains twice per week.

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

In accordance with the provisions of 40 CFR § 133.102(a)(4) and (b)(3), the 2012 Permit requires that the 30-day average percent removal for $CBOD_5$ and TSS be not less than 85%. The DMR data during the review period shows that the median $CBOD_5$ and TSS removal percentages are 98.6% and 98.7%, respectively. There were no exceedances of the 85% removal requirement for $CBOD_5$ or TSS during that period.

The requirement to achieve 85% BOD_5 and TSS removal has been carried forward into the Draft Permit.

5.1.5 pH

The Massachusetts water quality standards specify that the pH of Class B waters shall be within the range of 6.5-8.3 Standard Units (S.U.), and within 0.5 S.U. of the natural background range (see 314 CMR 4.05(3)(b)(3)). The 2012 Permit includes a pH upper limit value of 8.3 S.U. consistent with this regulation. The 2012 Permit has an approved lower limit pH value of 6.0 S.U.

The DMR data during the review period show that there have been no exceedances of the pH limits.

The expanded pH range in the 2012 Permit will be carried forward. An optional pH study (described in footnote 6 of Part I.A of the Permit) must be conducted within three years for this expanded limit to be carried forward in the next permitting cycle. If the Permittee chooses not to conduct the study, the pH limits in future permits will be aligned with the MA WQS (i.e., 6.5-8.3 S.U.).

5.1.6 Bacteria

The 2012 Permit included effluent limitations for bacteria using fecal coliform bacteria as the indicator bacteria with a monthly average limit of 200 colony forming units (cfu)/100 ml and a daily maximum limit of 400 cfu/100 ml. These limits were based on the applicable WQS at the time the previous permit was issued.

After one disinfection season (*i.e.*, in 2013), the 2012 Permit was designed to switch to *E. Coli* limits, to be consistent with Massachusetts' updated 2007 bacteria criteria at 314 CMR 4.05(3)(b)(4), which were approved by EPA on September 19, 2007. The *E. Coli* limits are 126 colonies/100 ml as a geometric mean and 409 colonies/100 ml as a maximum daily value.

There were no violations of the monthly geometric mean limit and 3 violations of the daily maximum limit during the review period.

More recently, updated Massachusetts WQS with respect to bacteria were approved by EPA on March 31, 2022. Permit limits based on the new 2022 WQS for *E. Coli* would be 126 colonies/100 ml as a geometric mean (same as the current limit) and 410 colonies/100 ml as a maximum daily value (slightly less stringent than the current limit). Given that the more stringent limit of 409 colonies/100 ml (compared to 410 colonies/100 ml as described above) is already effective under the 2012 Permit, it will be carried forward based on anti-backsliding regulations discussed in Section 2.6 above. Therefore, the same *E. Coli* limits and monitoring frequency from the 2012 Permit are carried forward in the Draft Permit.

5.1.7 Total Residual Chlorine

The Permittee uses chlorine disinfection. The 2012 Permit includes effluent limitations for total residual chlorine (TRC) of 1 mg/L (maximum daily). The DMR data during the review period show that there have been three exceedances of the TRC limitations.

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 * 0.001 (conversion factor µg/l to mg/l) = Chronic limit
> 11 µg/L * 176 * 0.001 = 1.9 mg/L (average monthly)
>
> Acute criteria * dilution factor * 0.001 (conversion factor µg/l to mg/l)= Acute limit
> 19 µg/L * 176 * 0.001 = 3.3 mg/L (maximum daily)

The above water quality-based TRC limits are greater than 1.0 mg/L, therefore, instead of the above water quality-based limits a daily maximum limit of 1.0 mg/L shall be applied to the discharge in order to prevent acutely toxic impacts in the vicinity of the discharge and based on anti-backsliding regulations discussed in Section 2.6 above. This limit is included in the Draft Permit and is the same as the limit in the 2012 Permit.

5.1.8 Ammonia

The 2012 Permit does not include ammonia limits, but the Permittee was required to monitor effluent ammonia concentrations on a weekly basis. Additionally, effluent and ambient ammonia concentrations were monitored and reported twice per year as part of the Whole Effluent Toxicity (WET) testing. These effluent data and ambient data (taken upstream of the Amherst outfall in the Connecticut River) are presented in Appendix A.

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

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

To determine the applicable ammonia criteria, EPA assumes a warm weather (April through October) temperature of 25° C and a cold weather (November through March) temperature of 5° C. EPA used the ambient pH monitoring shown in Appendix A, which indicates that the median pH is 7.29 S.U. Additionally, the Connecticut River in the vicinity of the Amherst WWTP 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.

Based on the information and assumptions described above, Appendix B presents the applicable ammonia criteria, the details of the mass balance equation, the reasonable potential determination, and, if necessary, the limits required in the Draft Permit. As shown, there is no reasonable potential to cause or contribute to an excursion of WQS, so the Draft Permit does not propose ammonia limits.

Effluent and ambient monitoring for ammonia will continue to be required in the WET tests.

5.1.9 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 freshwater ecosystems and nitrogen in marine or estuarine ecosystems. Thus, for this receiving water both are nutrients of concern evaluated below.

5.1.9.1 Total Nitrogen

The Amherst WWTP discharges to the Connecticut River, which drains to the Long Island Sound (LIS). The 2012 Permit required weekly monitoring for total Kjeldahl nitrogen, nitrate and nitrite, the sum of which provides the total nitrogen (TN) concentration. As shown in Attachment A, the Facility also reported TN concentration data and the calculated monthly average total nitrogen loading from the Facility, total nitrogen discharges ranged from 138.8 lb/day to 667.8 lb/day with a median of 301.9 lb/day during the review period. Using these data to calculate 12-month rolling annual average loads for the review period results in a range from 266 lb/day to 383 lb/day.

As explained below, since 2019 EPA has adopted a systemic, state-by-state approach to control nitrogen pollution discharging from "out-of-basin" point sources in Massachusetts, New Hampshire and Vermont into tributaries of LIS, a severely impaired water body shared by New York and Connecticut. EPA's methodology for establishing TN limitations for out-of-basin POTWs in Massachusetts and New Hampshire has been challenged in the United States Environmental Appeals Board (EAB) and the case has been resolved in EPA's favor. EPA's Response to the Petition was filed on December 11, 2020, and EPA incorporates that filing herein, inclusive of attachments (*e.g.*, Exhibit S, Response to the Comments, as it relates to TN.[11]) EAB's order denying review is dated May 17, 2021[12]

In 2000, New York and Connecticut finalized a Total Maximum Daily Load[13] (TMDL) that addressed dissolved oxygen impairments in Long Island Sound due to excessive nitrogen loading. It was approved by EPA in 2001. While the TMDL included waste load allocations (WLAs) for point sources in Connecticut and New York, out-of-basin facilities were not assigned WLAs. However, the Connecticut and New York WLAs included in the TMDL were based on an assumption that out-of-basin point source loads of total nitrogen would be reduced in aggregate by 25% from the baseline through enforceable permit requirements imposed by permitting authorities in the out-of-basin states to protect downstream waters.

EPA implemented optimization requirements in many out-of-basin permits issued in the LIS watershed from 2007 through early 2019 in accordance with an agreement forged in 2012 among the five LIS watershed states, known as the "Enhanced Implementation Plan" (EIP).[14] However, concerns raised in recent public comments by the downstream state (Connecticut) and citizens highlighted the need for clearly enforceable, numeric, loading-based effluent limits to ensure that the annual aggregate nitrogen loading from out-of-basin point sources are consistent with the assumptions of the TMDL WLA of 19,657 lb/day and to ensure that current aggregate loadings do not increase. This is in accordance with the State of Connecticut's antidegradation policy,

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

[12] https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/NPDES%20Permit%20Appeals%20(CWA)/61585EEC1C328394852586E20073D0FD/$File/Springfield%20Water%20&%20Sewer%20Commission.pdf

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

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

which requires existing uses to be fully maintained and protected. These uses are already being compromised given the continued, severe nitrogen-driven impairments in LIS. After further review of federal and state requirements, EPA agreed with the concerns raised by the downstream affected state and the public and noted that optimization requirements, by themselves, do not prevent further increases in nitrogen due to population growth (and consequent flow increases) or new industrial dischargers.

Scientific, Statutory and Regulatory Implementation Considerations

As discussed in Section 2 of this Fact Sheet, statutory and regulatory requirements regarding the development of water quality-based effluent limits include: (1) consideration of applicable water quality requirements of downstream states, including provisions to prevent further degradation of receiving waters that are already impaired, pursuant to a state's antidegradation policy, and provisions to implement other applicable water quality standards, including translation of narrative water quality criteria, and (2) provisions to ensure consistency with the assumptions of any available WLAs.

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

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

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

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

water body and considering any impairment listed pursuant to 33 USC 1313(d) or any Total Maximum Daily Load (TMDL) established for the water body.

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

Although nitrogen driven impairments in LIS have been reduced in recent years, they have not been eliminated, and they remain significant. In EPA's technical and scientific judgment, the current quantity of nitrogen in LIS exceeds the narrative and numeric nutrient-related criteria applicable to LIS, and designated aquatic life uses are not being protected, based on analyses of water quality data and information in the administrative record.[15] While there have been significant reductions in the size of the hypoxic zone in LIS due largely to in-basin point source TN reductions, LIS continues to be impaired.[16] It is undisputed that significant amounts of nitrogen from out-of-basin facilities are discharged to the LIS watershed (as much as 6 million pounds per year, based on the sum of the maximum annual discharge from each out-of-basin discharger from 2013 to 2017). The out-of-basin loads in the aggregate necessarily contribute, or have the reasonable potential to contribute, to these exceedances.

Since the LIS TMDL was approved by EPA in 2001, the study of water quality conditions in LIS and the nitrogen loadings that contribute to hypoxia and other impairments there has continued. Annual monitoring of hypoxia and dissolved oxygen conditions in Long Island continues, as most recently documented in the *2019 Long Island Sound Hypoxia Season Review*[17] which notes that while the area of hypoxia has been reduced, water quality standards have not yet been met.[18] In 2015, the Long Island Sound Study (LISS)[19] updated its Long Island Sound Comprehensive Conservation and Management Plan (CCMP)[20] which sets watershed targets, implementation actions to meet those targets, and monitoring strategies. One of the objectives of the CCMP is to improve water quality by further reducing nitrogen pollution from sources that are more distant from the Sound, [21] such as wastewater treatment plants in Massachusetts.

A study published in 2008 used both measurements and mass-balance modeling to evaluate the potential for nitrogen attenuation in the main stem of the Connecticut River in April and August

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[15] *See* e.g. Long Island Sound Report Card 2018, at https://www.ctenvironment.org/wp content/uploads/2018/09/ReportCard2018-BestView.pdf
[16] Long Island Sound Study, *A Healthier Long Island Sound: Nitrogen Pollution*, 2019, page 2.
[17] CTDEEP, Interstate Environmental Commission, EPA, *2019 Long Island Sound Hypoxia Season Review*, available at: http://www.iec-nynjct.org/sites/default/files/2020-07/FINAL_LISound-Hypoxia-2019-Combined-Report_april2020.pdf
[18] *2019 Long Island Sound Hypoxia Season Review* (page 13)
[19] The Long Island Sound Study (LISS) is a bi-state partnership, formed by EPA, New York and Connecticut in 1985, consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to restoring and protecting the Long Island Sound. For more information see https://longislandsoundstudy.net/
[20] LISS, Long Island Sound Comprehensive Conservation and Management Plan 2015 Returning the Urban Sea to Abundance (CCMP), 2015.
[21] CCMP, page 19.

2005. One of the reaches studied was a 55 km stretch of the Connecticut River in Massachusetts and the other was a 66 km stretch of the Connecticut River along the New Hampshire/Vermont border. The study found no nitrogen loss in that reach either in April or August, most likely due to the depth and higher velocities in the main stem of the river compared to the shallower, slower tributaries where previous models and studies had demonstrated varying degrees of nitrogen attenuation.[22] For the New Hampshire reach, measured nitrogen loss occurred only in August 2005. This finding may be due to the presence of hydroelectric power dams on the Connecticut River, which significantly alter the natural character of the channel. Dams are present at the head and foot of both study reaches, but a greater length of deep, impounded water extends across the southern reach than the northern study reach which, by contrast, has substantially more shallow, gravelly pool-and-riffle sequences. It is possible that, by allowing greater interaction of the water column with a biologically active substrate, these shallow channel sections in the north provide an opportunity for attenuation of in-stream nitrogen that does not exist in the southern reach. As noted by Alexander et al. (2000)[23], nitrogen removal by denitrification and settling is generally less in deeper channels where streamwater has less contact with benthic sediment.

In addition, subsequent studies refined the understanding of out-of-basin baseline nitrogen loading which suggest lower out-of-basin baseline point source loading to the Connecticut River than the 21,672 lb/day assumed in the 2000 TMDL. In 2013, the United States Geological Survey (USGS) published an estimation of the total nitrogen load to Long Island Sound from Connecticut and contributing areas to the north for October 1998 to September 2009.[24] Available total nitrogen and continuous flow data from 37 water-quality monitoring stations in the LIS watershed, for some or all of these years, were used to compute total annual nitrogen yields and loads. In order to extract the non-point source loadings from the total nitrogen measured, the authors relied on point source estimates from the SPARROW model of nutrient delivery to waters in the Northeastern and Mid-Atlantic states in 2002, including the Connecticut River, that was published by Moore and others in 2011.[25] The SPARROW model estimated that 1,776.7 metric tons per year (MT/yr) (or annual average 10,820 lb/day) of total nitrogen was discharged to the Connecticut River from Massachusetts, New Hampshire and Vermont in 2002[26]. These estimates were based on an approach by Maupin and Ivahnenko, published the same year, which used discharge monitoring data available from EPA's Permit Compliance System (PCS) database for 2002.[27,28] Where no data was available, an estimated typical pollutant concentration

[22] Smith, Thor E., et al, *Nitrogen Attenuation in the Connecticut River, Northeastern USA; A Comparison of Mass Balance and N_2 Production Modeling Approaches, Biogeochemistry*, Mar., 2008, Vol. 87, No. 3 (Mar., 2008), pp. 311-323
[23] https://link.springer.com/article/10.1007/s10533-008-9186-7#ref-CR1
[24] Mullaney, J.R., and Schwarz, G.E., 2013, Estimated Nitrogen Loads from Selected Tributaries in Connecticut Draining to Long Island Sound, 1999–2009: U.S. Geological Survey Scientific Investigations Report 2013–5171, 65
[25] Moore, Richard B., Craig M. Johnston, Richard A. Smith, and Bryan Milstead, 2011. Source and Delivery of Nutrients to Receiving Waters in the Northeastern and Mid-Atlantic Regions of the United States. Journal of the American Water Resources Association (JAWRA) 47(5):965-990. DOI: 10.1111/j.1752-1688.2011.00582.x
[26] Extrapolated from Moore, et.al 2011, Table 3 on page 977 which estimated that for 2002 an 33.2 % of the total 4,553 MT/yr Massachusetts nitrogen load was from point sources, 2.5% of the total 3,795 MT/yr Vermont nitrogen load was from point sources and 6.1 percent of the total 2,790 MT/yr New Hampshire nitrogen load was from point sources.
[27] Moore (2011), page 968.
[28]Maupin, Molly A. and Tamara Ivahnenko, 2011. Nutrient Loadings to Streams of the Continental United States

(TPC) and flow was used to approximate nitrogen loading from point sources according to their industrial category.[29]

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

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

Compliance with Antidegradation Requirements of Downstream Affected State

One of the principal objectives of the CWA, articulated in CWA § 101(a) is to "maintain the chemical, physical and biological integrity of the Nation's waters." The antidegradation requirements in federal regulations at 40 CFR § 131.12 provide a framework for maintaining and protecting water quality that has already been achieved and require states to adopt provisions in their water quality standards that prevent further degradation of both degraded waters and waters which are meeting or exceeding the water quality necessary to protect designated and existing uses. As noted above, antidegradation provisions of Connecticut's water quality standards require that existing uses be fully maintained and protected. They expressly required consideration of any applicable TMDL, as well as narrative and numeric water quality criteria. EPA therefore undertakes Tier 1 review in light of the LIS TMDL, which has still not resulted in attainment of water quality standards in LIS, as well as Connecticut's numeric water quality criteria for dissolved oxygen, which are routinely violated, and its narrative water quality criteria nutrients, which is likewise not being met. Authorizing a significantly increased nitrogen loading into an impaired water body that is suffering the ongoing effects of cultural eutrophication would further compromise receiving water conditions and uses and be inconsistent with applicable antidegradation requirements. In arriving at this conclusion, EPA also notes that Connecticut's antidegradation procedures are precautionary in nature and apply to discharges that "may affect" water quality.

To ensure that the out-of-basin point-source load does not violate Connecticut's antidegradation standards, the new total nitrogen loading limits (for dischargers with design flows greater than 1 MGD) along with the requirement to minimize nitrogen discharge by facility optimization (for all dischargers with design flow greater than 0.1 MGD) are intended to ensure that nitrogen loads are held at current loadings. As can be seen from the summary in Table 2, 92 % of this load is from POTWs with design flow > 1 MGD. The impact of the new TN effluent limits will be to cap that load at approximately the same average loading. Table 2 summarizes the five-year average out-of-basin loads generated by Massachusetts non-stormwater point sources, based on

From Municipal and Industrial Effluent. *Journal of the American Water Resources Association* (JAWRA) 47(5):950-964.

[29] Maupin (2011), page 954.

data provided in Appendix C. While the sum of effluent limited loads for POTWs with design flow greater than 1 MGD is somewhat higher than the average loads observed in recent years, actual effluent limited loads can be expected be lower than the limits in order to avoid permit exceedances. EPA will continue to track out-of-basin loads as new data becomes available and will re-evaluate permit requirements for nitrogen for all out-of-basin dischargers in future permit actions.

Table 2 - Summary of Massachusetts Out-of-Basin Non-Stormwater Point Source Loads

	Sum of Average Load 2017-2021 (lb/day)	Sum of Effluent Limited Loads (lb/day)
POTWs with design Flow > 1 MGD	9,877 (93.2%)	10,907
POTWs with design Flow 0.1 to 1 MGD	704 (6.6%)	
POTWs with design Flow < 0.1 MGD and Industrial Sources.	20 (0.2%)	

Translation of Narrative Nutrient Criteria

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

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

Consistency with Assumptions of Available WLA

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

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

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

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

Derivation of Effluent Limits

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

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

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

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

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

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

- First, EPA *identified* the existing aggregate load from all contributing facilities in a given state.
- Second, because Long Island Sound is already nitrogen impaired and failing to achieve applicable water quality standards,[30] EPA *capped* that load to avoid contributing to further impairments and fully protect existing uses.
- Third, EPA *allocated* the load according to a water quality-related consideration rationally related to achieving water quality standards in Long Island Sound and carrying out the objectives of the Act.

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

- EPA estimated the current maximum out-of-basin annual point source load using data for the five years prior to the year of the Draft Permit, consistent with Region 1's ordinary practice of using the most recent five years of data in the derivation of effluent limits for permits, which is in accordance with the recommendation in EPA guidance to use three to five years and, by use of the longer timeframe, is intended to more fully capture a representative data set[31] (see estimate of recent effluent loadings in Appendix C);
- It prioritized effluent limits for major POTW facilities with design flow greater than 1 MGD, consistent with the definition of major facility in 40 CFR § 122.2;[32]
- It developed mass-based rolling annual average TN effluent limits based on design flow (consistent with 40 CFR § 122.45(b)(1)) and effluent concentrations that can achieved by means of currently available nitrogen removal technology for all facilities and the design flow for each facility, where effluent limit (lb/day) = Concentration (mg/L) x Design Flow (MGD) x 8.34;
- EPA based limits on concentrations that can typically be achieved through optimization for POTW facilities with design flow less than 10 MGD, with more aggressive optimization expected for facilities with design flow greater than 5 MGD; and,

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

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

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

- For the four POTW facilities with design flow greater than 10 MGD (which together comprise more than half of the total Massachusetts load to LIS), EPA based limits on concentrations achievable through optimization or upgrades.

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

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

Based on the approach described above, Table 3 summarizes the TN requirements implemented for this and other permits in the LIS watershed in Massachusetts since 2019. EPA is also working with the States of New Hampshire and Vermont to ensure that comparable requirements are included in NPDES permits issued in those states.

Table 3 - Annual Average Total Nitrogen Limits for Massachusetts WWTP Dischargers to the Long Island Sound Watershed

Facility Design Flow, Q_D (MGD)	**Number of Facilities**	**Annual Average TN Limit (lb/day)**
$Q_D > 10$	4	Q_D (MGD) * 5 mg/L * 8.34 + optimize
$5 < Q_D \leq 10$	5	Q_D (MGD) * 8 mg/L * 8.34 + optimize
$1 \leq Q_D \leq 5$	20	Q_D (MGD) * 10 mg/L * 8.34 + optimize
$0.1 \leq Q_D < 1$	17	Optimize
$Q_D < 0.1$	8	TN monitoring only

The basis for establishing mass-based effluent limits using facility design flow and 5, 8 and 10 mg/L as total nitrogen concentrations that facilities can meet by means of optimization or, for the four largest facilities, readily available treatment technology, meets the legal requirements of the CWA but was derived in order to balance the burden of treatment with the four largest facilities (currently generating more than half of the Massachusetts out-of-basin load) required to meet 5 mg/L concentration at design flow, and the remaining facilities with effluent limits that can be achieved through system optimization. In tiering the facilities, EPA considered the relative magnitude of flows from these facilities and observed that there was a significant divide between the four largest facilities and the remaining facilities (67 MGD for Springfield, 17.5 MGD for Holyoke, 17 MGD for Pittsfield and 15 MGD for Chicopee compared to the next largest at 8.6 MGD for Northampton). The four largest facilities contribute 53% of the design flow for the out-of-basin watershed. EPA also observed that three of these facilities are on the main stem of the Connecticut River and Pittsfield is on the mainstem of the Housatonic, so there is little or no attenuation of nitrogen. All these factors, in EPA's technical judgment, warranted the further additional assurance of meeting water quality standards provided by a more stringent numeric cap in loading that may necessitate a facility upgrade, as opposed to limits achievable through optimization only. EPA also notes that the four larger facilities will be able to spread the cost of any upgrade over a much larger user base.

Thus, in arriving at its tiering determination, EPA considered a series of technical and environmental factors within its expertise, and also took into account equitable considerations. EPA acknowledges that the chosen tiers are not the only way to divide the out-of-basin TN allocations, but was not presented with any alternatives that capped the existing load based on design flow through the imposition of enforceable permit limits.

For example, EPA considered, and rejected, the option to apply a limit based on 8 mg/L effluent limit for all facilities with design flow greater than 1 MGD (at their respective design flows) because that would result in an increase in the current loading and place a greater burden on facilities that service relatively small communities. The combined design flow for the 29 MA POTW facilities with design flow greater than 1 MGD is 196 MGD. Of this combined design flow, 60%, or 117 MGD consists of the design flow for the four largest POTWs. Under the selected permitting approach, the proportion of the permitted load from the four largest facilities will be 60% of the combined permitted load for all 29 MA facilities, consistent with the proportion of design flow. If all POTWs with design flow over 1 MGD had a concentration-based limit of 8 mg/L (or a load based limit based on 8 mg/L and design flow), the proportion of the permitted load coming from the four largest facilities would increase from 60% of the total permitted load to 90%, shifting the burden of treatment significantly from larger to smaller facilities. In addition, the total permitted TN loading from those 29 facilities would increase from 8,100 lb/day under the chosen approach to 8,600 lb/day.

In addition to the effluent limits described above, EPA is also requiring all POTWs with a design flow of 0.1 MGD or greater to optimize for nitrogen removal to ensure that the aggregate 25% reduction is maintained or increased. The optimization condition in the Draft Permit requires the Permittee to evaluate alternative methods of operating their treatment plant to optimize the removal of nitrogen, and to describe previous and ongoing optimization efforts. Specifically, the Draft Permit requires an evaluation of alternative methods of operating the existing wastewater

treatment facility to control total nitrogen levels, including, but not limited to, operational changes designed to enhance nitrification (seasonal and year-round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. This evaluation is required to be completed and submitted to EPA and MassDEP within one year of the effective date of the permit, along with a description of past and ongoing optimization efforts. The permit also requires implementation of optimization methods to ensure that the facility is operated in such a way that discharges of total nitrogen are minimized. The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies and track trends relative to previous years.

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

Since the design flow for the Amherst facility is less than 10 MGD and greater than 5 MGD (7.1 MGD), the annual loading TN limit calculated for the Draft Permit is:

7.1 MGD * 8 mg/L * 8.34 = 474 lb/day.

The effluent limit is a rolling annual average based on the average of the current average monthly and the average monthly of the previous 11 months. The monitoring frequency in the Draft Permit is once per week from April 1 through October 31 and once per month from November 1 through March 31.

As noted at the beginning of this section, the maximum value for the rolling annual average nitrogen load during the review period was 383 lb/day. Given that the Amherst WWTP is already in compliance with the proposed total nitrogen limit of 474 lb/day in the Draft Permit, EPA has determined that a compliance schedule is not appropriate, and one has not been included in the Draft Permit.

The limit is a 12-month rolling average limit calculated as the arithmetic mean of the monthly average total nitrogen load for each reporting month and the previous eleven months. Therefore, compliance will be measured beginning 12 months after the Permit issuance and will be based on the arithmetic mean of the first 12 monthly average total nitrogen loads. Compliance will continue to be measured each month following.

Future Nitrogen Limits

The new nitrogen annual loading limit in this Draft Permit is intended to meet the requirements of the 2001 LIS TMDL, which was developed to address hypoxic conditions in the bottom waters of LIS. In December 2015, EPA signed a letter detailing a post-TMDL EPA nitrogen reduction strategy for waters in the LIS watershed. The strategy recognizes that more work may need to be done to reduce nitrogen levels, further improve DO conditions, and attain other related water quality standards in LIS, particularly in coastal embayments and the estuarine portions of rivers that flow into the Sound. EPA is working to establish nitrogen thresholds for

Western LIS and several coastal embayments, including the Connecticut River. Documents regarding the EPA Nitrogen Reduction Strategy are available for public review on EPA's Long Island Sound website (http://longislandsoundstudy.net/issues-actions/water-quality/nitrogen-strategy/). Upon completion of establishing thresholds and assessing the water quality conditions of the estuarine waters of the Connecticut River, allocations of total nitrogen loadings may be lowered if further reductions are necessary. If further reductions are needed for the Amherst discharge, a lower water quality-based effluent limit will be added in a future permit action. If so, EPA anticipates exploring possible trading approaches for nitrogen loading in the Massachusetts portion of the Connecticut River watershed.

5.1.9.2 Total Phosphorus

While phosphorus is an essential nutrient for the growth of aquatic plants, it can stimulate rapid plant growth in freshwater ecosystems when it is present in high quantities.

The excessive growth of aquatic plants and algae within freshwater systems negatively impacts water quality and can interfere with the attainment of designated uses by: 1) increasing oxygen demand within the water body to support an increase in both plant respiration and the biological breakdown of dead organic (plant) matter;[33] 2) causing an unpleasant appearance and odor; 3) interfering with navigation and recreation, for instance, by fouling engines and propellers, making waters unappealing to swimmers, and interfering with fishing lures and equipment; 4) reducing water clarity; 5) reducing the quality and availability of suitable habitat for aquatic life; and 6) producing toxic cyanobacteria during certain algal blooms. Cultural (or accelerated) eutrophication is the term used to describe dense and excessive plant growth in a water body that results from nutrients entering the system as a result of human activities. Discharges from municipal and industrial wastewater treatment plants, agriculture runoff, and stormwater are examples of human-derived (*i.e.*, anthropogenic) sources of nutrients in surface waters. See generally, *Nutrient Criteria Technical Guidance Manual – Rivers and Streams*, EPA July 2000 [EPA-822-B-00-002], Chapters 1 and 3.

The MA WQS under 314 CMR 4.05(5)(c) requires that, unless naturally occurring, surface waters must be free from nutrients that cause or contribute to impairment of the existing or designated uses, and the concentration of phosphorus may not exceed site specific criteria developed in a TMDL. Nutrients are also prohibited in concentrations that would cause or contribute to cultural eutrophication. Cultural eutrophication also results in exceedances of other nutrient-related water quality standards such as low dissolved oxygen, decreased water clarity, objectionable odors, and surface scum. The MA WQS at 314 CMR 4.05(3)(b)(1) requires that dissolved oxygen not be less than 6.0 mg/L in cold water fisheries or 5.0 mg/L in warm water fisheries. Further, the MA WQS at 4.05(3)(b)(5), (6) and (8) state that waters must be free from "floating, suspended, and settleable solids," free from "color and turbidity in concentrations or

[33] "Algae" includes phytoplankton (microscopic algae measured by levels of chlorophyll a), macroalgae (commonly referred to as seaweed), and other plants stimulated by nutrient over-enrichment. Excessive algal growth contributes to low levels of dissolved oxygen through increased plant respiration and decomposition of dead plant matter. Notably, during the day, algae provide oxygen to the water as a by-product of photosynthesis. At night, however, when photosynthesis ceases but plant respiration continues, dissolved oxygen levels decline. Additionally, as these algae die, they are decomposed by bacteria that consume yet more oxygen. When dissolved oxygen levels are low, aquatic organisms become stressed and die, and overall aquatic health is degraded.

combinations that are aesthetically objectionable…", and have no taste and odor "in such concentrations or combinations that are aesthetically objectionable, that would impair any use assigned to this Class, or that would cause tainting or undesirable flavors in the edible portions of aquatic life." To prevent cultural eutrophication, the MA WQS at 4.05(5)(c) states that "Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs and best available technology economically achievable (BAT) for non POTWs, to remove such nutrients to ensure protection of existing and designated uses." Also see Part 2.2.2 of this Fact Sheet above regarding antidegradation and existing uses which may be impacted by nutrient over-enrichment.

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

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

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

respectively. While reference conditions reflect in-stream phosphorus concentrations that are sufficiently low to meet the requirements necessary to support designated uses, they may also represent levels of water quality beyond what is necessary to support such uses.

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

As the Gold Book notes, there are natural conditions of a water body that can result in either increased or reduced eutrophic response to phosphorus inputs; in some waters more stringent phosphorus reductions may be needed, while in some others a higher total phosphorus threshold could be assimilated without inducing a eutrophic response. In this case, EPA is not aware of any site-specific factors relevant to the receiving water that would result in it being unusually more or less susceptible to phosphorus loading.

Sampling data from 2008[34], summarized in Table 4, reported five summer in-stream phosphorus concentrations collected at Station W1045, located approximately 4 miles upstream of the Amherst discharge.

Table 4: Instream total phosphorus concentrations (mg/L)

	W-1045
5/06/2008	0.023
6/03/2008	0.013
7/01/2008	0.014
7/29/2008	0.025
9/09/2008	0.015

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

Based on the phosphorus criterion described above, the ambient data presented above, the upstream 7Q10 flow, and the design flow of the Facility, Appendix B presents the details of the mass balance equation, the determination of whether there is reasonable potential to cause or contribute to an excursion of WQS and, if necessary, the limits proposed in the Draft Permit WQS. As shown, it was determined that the downstream concentration is 40 µg/L which does not exceed the instream target of 100 µg/L. Therefore, there is no reasonable potential to cause or contribute to an excursion of WQS, so the Draft Permit does not propose a phosphorus limit.

[34] https://arcgisserver.digital.mass.gov/MassDEPWaterQuality

Given that the downstream concentration is well below the target and the significant available dilution, EPA has removed the phosphorus monitoring requirement and notes that effluent monitoring will be required in the next permit application for EPA to use in the next permit reissuance.

5.1.10 Metals

5.1.10.1 Applicable Metals Criteria

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

The criteria for cadmium, copper, lead, nickel and zinc are hardness-dependent using the equations found at 314 CMR 4.06 Appendix C. The estimated hardness of the Connecticut 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. Effluent and receiving water data are presented in Appendix A. Using the mass balance equation discussed in Appendix B, the resulting downstream hardness is 40.7 mg/L and the corresponding criteria are also presented in Appendix B.

Based on the 2022 MA WQS update, the aluminum criteria are dependent on hardness, pH and dissolved organic carbon (DOC) as described at 314 CMR 4.06 Table 29. Given that there is limited site-specific data available, the watershed default values are used in the analysis below.

5.1.10.2 Reasonable Potential Analysis and Limit Derivation

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

Based on the information described above, the results of this analysis for each metal are presented in Appendix B.

As shown, there is no reasonable potential to cause or contribute to an excursion of WQS for aluminum, cadmium, copper, lead, nickel, and zinc, so the Draft Permit does not propose any new limits for these metals.

Effluent and ambient monitoring for each of these metals will continue to be required in the WET tests.

5.1.11 Whole Effluent Toxicity

CWA §§ 402(a)(2) and 308(a) 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 be toxic to aquatic life or human health.

In addition, under CWA § 301(b)(1)(C), discharges are subject to effluent limitations based on WQSs. Under CWA §§ 301, 303 and 402, EPA and the States may establish toxicity-based limitations to implement the narrative water quality criteria calling for "no toxics in toxic amounts". *See also* 40 CFR § 122.44(d)(1). The Massachusetts WQSs at 314 CMR 4.05(5)(e) state, "All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife." National studies conducted by 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, reasonable potential may exist for this discharge to cause or contribute to an exceedance of the "no toxics in toxic amounts" narrative water quality standard.

In accordance with current EPA guidance and State policy[35], whole effluent chronic effects are regulated by limiting the highest measured continuous concentration of an effluent that causes no observed chronic effect on a representative standard test organism, known as the chronic No Observed Effect Concentration (C-NOEC). Whole effluent acute effects are regulated by limiting the concentration that is lethal to 50% of the test organisms, known as the LC_{50}. This policy recommends that permits for discharges having a dilution factor greater than 100 require acute toxicity testing two times per year for two species. Additionally, for discharges with dilution factors greater than 100, the LC_{50} limit should be greater than or equal to 50%.

The acute WET limit in the 2012 Permit is LC_{50} greater than or equal to 50%, using the daphnid (*Ceriodaphnia dubia*) and the fathead minnow (*Pimephales promelas*) as the test species. During the permit term the Facility received a reduction from the two monitoring species testing requirement to only the daphnid. The Facility has consistently met these limits (Appendix A).

Based on the potential for toxicity from domestic and industrial contributions, the state narrative water quality criterion, the dilution factor of 176, and in accordance with EPA national and

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

regional policy and 40 CFR § 122.44(d), the Draft Permit continues the effluent limit from the 2012 Permit including the species and the testing frequency. The previously approved species reduction is carried forward in this Draft Permit. Toxicity testing must be performed in accordance with the updated EPA Region 1 WET test procedures and protocols specified in Attachments A, *Freshwater Acute Toxicity Test Procedure and Protocol* (February 2011) of the Draft Permit.

In addition, EPA's 2018 *National Recommended Water Quality Criteria* for aluminum are calculated based on water chemistry parameters that include dissolved organic carbon (DOC), hardness and pH. Since aluminum monitoring is required as part of each WET test, an accompanying new testing and reporting requirement for DOC, in conjunction with each WET test, is warranted in order to assess potential impacts of aluminum in the receiving water.

5.1.12 Per- and polyfluoroalkyl substances (PFAS)

As explained at https://www.epa.gov/pfas, PFAS are a group of synthetic chemicals that have been in use since the 1940s. PFAS are found in a wide array of consumer and industrial products. PFAS manufacturing and processing facilities, facilities using PFAS in production of other products, airports, and military installations can be contributors of PFAS releases into the air, soil, and water. Due to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS. Exposure to some PFAS above certain levels may increase risk of adverse health effects.[36] EPA is collecting information to evaluate the potential impacts that discharges of PFAS from wastewater treatment plants may have on downstream drinking water, recreational and aquatic life uses.

Background Information

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

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

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

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

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

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

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

Since PFAS chemicals are persistent in the environment and may lead to adverse human health and environmental effects, and consistent with recent EPA guidance,[37] the Draft Permit requires that the Facility conduct quarterly influent, effluent and sludge sampling for PFAS chemicals and annual sampling of certain industrial users. The quarterly monitoring shall begin the first full calendar quarter following six months after the effective date of the permit. The annual monitoring for certain industrial users shall begin the first full calendar year following the effective date of the permit.

The purpose of this monitoring and reporting requirement is to better understand potential discharges of PFAS from this facility and to inform future permitting decisions, including the potential development of water quality-based effluent limits on a facility specific basis. EPA is authorized to require this monitoring and reporting by CWA § 308(a), which states:

> "SEC. 308. (a) Whenever required to carry out the objective of this Act, including but not limited to (1) developing or assisting in the development of any effluent limitation, or other limitation, prohibition, or effluent standard, pretreatment standard, or standard of performance under this Act; (2) determining whether any person is in violation of any such effluent limitation, or other limitation, prohibition or effluent standard, pretreatment standard, or standard of performance; (3) any requirement established under this section; or (4) carrying out sections 305, 311, 402, 404 (relating to State permit programs), 405, and 504 of this Act—
>
> (A) the Administrator shall require the owner or operator of any point source to (i) establish and maintain such records, (ii) make such reports, (iii) install, use, and maintain such monitoring equipment or methods (including where appropriate, biological monitoring methods), (iv) sample such effluents (in accordance with such methods, at such locations, at such intervals, and in such manner as the Administrator shall prescribe), and (v) provide such other information as he may reasonably require;".

[37] Radhika Fox, Assistant Administrator, EPA to Water Division Directors, EPA Regions 1-10, December 6, 2022, Subject: "Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs." Available at: https://www.epa.gov/system/files/documents/2022-12/NPDES_PFAS_State%20Memo_December_2022.pdf

(See 40 CFR § 122.21(e)(3)(ii) and 40 CFR § 122.44(i)(1)(iv)(B))

In the absence of a final 40 CFR § 136 method for measuring PFAS in wastewater and sludge, the Draft Permit requires the use of the single lab validated Draft Method 1633 or, when it becomes available, the multi-lab validated Method 1633. Monitoring should include each of the 40 PFAS parameters detectable by Method 1633 (see Draft Permit Attachment B for list of PFAS parameters) and the monitoring frequency is quarterly. All PFAS results must be reported on DMRs (see 40 CFR § 122.41)(l)(4)(i)).

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

Additionally, EPA has recently published Method 1621 to screen for organofluorines in wastewater. Organofluorines (molecules with a carbon-fluorine bond) are rarely naturally occuring and the most common source of organofluorines are PFAS and non-PFAS fluorinated compounds such as pesticides and pharmaceuticals. The Permittee shall monitor Adsorbable Organic Fluorine using Method 1621 once per quarter concurrently with PFAS monitoring to screen for a broader range of these types of emerging contaminants. This requirement also takes effect the first full calendar quarter following six months after the effective date of the permit.

All monitoring results may be used by EPA in the next permit reissuance to ensure the discharge continues to protect designated uses.

5.2 Industrial Users and Pretreatment

The permittee is not required to develop an industrial pretreatment program. There are no significant industrial users in the collection system. However, Part I.E of the Draft Permit includes conditions that are necessary to allow EPA and MassDEP to ensure that pollutants discharged to a facility by an industrial user will not pass through the facility and cause violations of water quality standards and/or sludge use and disposal difficulties, or cause interference with the operation of the treatment works. The Draft Permit requires Permittees to notify EPA and MassDEP whenever a process wastewater discharge to a facility from an industrial user within a primary industry category is planned or if there is any substantial change in the volume or character of pollutants being discharged into the facility by a source that was discharging at the time of the effective date of permit coverage. The Draft Permit requires Permittees to report to EPA and MassDEP the name(s) of all industrial users subject to Categorical Pretreatment Standards under 40 CFR § 403.6 and 40 CFR Chapter I, Subchapter N (Parts 405-415, 417-430, 432-447, 454, 455, 457-461, 463-469, and 471 as amended) who commence discharge to the facility after the effective date of permit coverage, and to forward any original pretreatment reports submitted by industrial users within ninety (90) days of their receipt to EPA and copy MassDEP in accordance with Part I.H.4 of the Draft Permit.

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

5.5 Operation and Maintenance

The standard permit conditions for 'Proper Operation and Maintenance', found at 40 CFR § 122.41(e), require the proper operation and maintenance of permitted wastewater systems and related facilities to achieve compliance with permit conditions. The requirements at 40 CFR § 122.41(d) impose a 'duty to mitigate,' which requires the permittee to "take all reasonable steps to minimize or prevent any discharge in violation of the permit that has a reasonable likelihood of adversely affecting human health or the environment.
General requirements for proper operation and maintenance, and mitigation have been included in Part II of the permit (See Part II.B.). Specific permit conditions have also been included in Part I.C.1. & 2. of the Draft Permit. These requirements are included to minimize the occurrence of permit exceedances and unauthorized discharges that have a reasonable likelihood of adversely affecting human health or the environment.

5.5.1 Operation and Maintenance of the Wastewater Treatment Facility

The Draft Permit, in Part I.C.1. requires the Permittee to address major storm and flood events as part of their wastewater treatment facility operation and maintenance planning. The major storm and flood plan addresses risks to the facility and its infrastructure from extreme weather events[38].

[38] "Major storm and flood events" refer to instances resulting from major storms such as hurricanes, extreme/heavy precipitation events, and pluvial, fluvial, and flash flood events such as high-water events, storm surge, and high-tide flooding. "Extreme/heavy precipitation" refers to instances during which the amount of rain or snow experienced in

The Plan should address resiliency of the facility, evaluate[39], and implement control measures to minimize[40] the impacts of major storm and flood events at the wastewater treatment facility. The plan's requirements include: an asset vulnerability evaluation, systemic vulnerability evaluation, and alternative evaluation. These requirements are included to ensure the proper operation and maintenance of the wastewater treatment facility and to minimize the impacts of major storm and flood events.
These requirements are new. EPA has determined that these additional requirements are necessary to ensure the proper operation and maintenance of the wastewater treatment facility and has included schedules in the Draft Permit for completing these requirements.

5.5.2 Operation and Maintenance of the Sewer System

The Draft Permit, in Part I.C.2. requires the Permittee to address major storm and flood events as part of their sewer system operation and maintenance planning. The major storm and flood plan should address risks to the sewer system and its infrastructure from extreme weather events.[41] The Plan should address resiliency of the system, evaluate, and implement control measures to minimize the impacts of major storm and flood events throughout the sewer system. The requirements include; an asset vulnerability evaluation, systemic vulnerability evaluation, and alternative evaluation. These requirements are included to ensure the proper operation and maintenance of the sewer system and to minimize the impacts of major storm and flood events. Several of these requirements are new. EPA has determined that these additional requirements are necessary to ensure the proper operation and maintenance of the wastewater treatment facility and has included schedules in the Draft Permit for completing these requirements.

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a location substantially exceeds what is normal. What constitutes a period of heavy precipitation varies according to location and season. "Extreme/heavy precipitation" does not necessarily mean the total amount of precipitation at a location has increased-just that precipitation is occurring in more intense or more frequent events.

[39] To determine the vulnerabilities to the facilities from major storm and flood events, you must conduct the evaluation using, at a minimum, the worst-case data relating to changes in precipitation, sea level rise, extreme weather events, coastal flooding, inland flooding, sewer flow and inflow and infiltration and relevant to the facilities from: 1) the data generated by the 13 federal agencies that conduct or use research on global change that contributed to the latest National Climate Assessment produced by the U.S. Global Change Research Program (USGCRP); 2) climate data generated by the Commonwealth of Massachusetts; and 3) resiliency planning completed by the municipality in which a given facility is located (i.e., City of Boston) and incorporate the results of the evaluation in a manner that demonstrates that the control measures taken are precautionary and sufficiently protective. Evaluation must be completed by a qualified person on a five-year basis considering 1) historical observations from all years the Permittee has operated the facility prior to this permit's term; 2) the 25 to 100 years forward-looking from the review year to assess impacts that are likely to occur.

[40] For the purposes of this provision, the term "minimize" means to reduce and/or eliminate to the extent achievable the impacts to the facilities.

[41] "Major storm and flood events" refer to instances resulting from major storms such as hurricanes, extreme/heavy precipitation events, and pluvial, fluvial, and flash flood events such as high-water events, storm surge, and high-tide flooding. "Extreme/heavy precipitation" refers to instances during which the amount of rain or snow experienced in a location substantially exceeds what is normal. What constitutes a period of heavy precipitation varies according to location and season. "Extreme/heavy precipitation" does not necessarily mean the total amount of precipitation at a location has increased-just that precipitation is occurring in more intense or more frequent events.

5.6 Standard Conditions

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

6.0 Federal Permitting Requirements

6.1 Endangered Species Act

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

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

The Federal action being considered in this case is EPA's proposed NPDES permit for the Facility's discharges of pollutants. The Draft Permit is intended to replace the 2012 Permit in governing the Facility. 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 in this section of the Connecticut River.

For protected species under the jurisdiction of the USFWS, one federally listed threatened species has been identified in the action area of the Amherst discharge.[42] A terrestrial listed threatened species, the northern long-eared bat (*Myotis septentrionalis*) was identified as potentially occurring in the action area of the Amherst WWTP's discharge. According to the USFWS, the threatened northern long-eared bat is found in the following habitats based on seasons, "winter – mines and caves; summer – wide variety of forested habitats." This species is not considered aquatic. However, because the Facility's projected action area in the Connecticut River in North Hadley overlaps with the general statewide range of the northern long-eared bat, EPA prepared an Effects Determination Letter for the Amherst WWTP NPDES Permit Reissuance and submitted it to USFWS. Based on the information submitted by EPA, the USFWS notified EPA by letter, dated February 4, 2023, that the permit reissuance is consistent with activities analyzed in the USFWS January 5, 2016, Programmatic Biological Opinion

[42] https://ipac.ecosphere.fws.gov/location/index

(PBO).[43] The PBO outlines activities that are excepted from "take" prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.). The USFWS consistency letter concluded EPA's consultation responsibilities for the Amherst WWTP NPDES permitting action under ESA section 7(a)(2) with respect to the northern long-eared bat.

For protected species under the jurisdiction of NOAA Fisheries, the following life stages of shortnose sturgeon (*Acipenser brevirostrom*) are likely present in the action area: adult (migrating, foraging, and overwintering); juvenile (migrating, foraging and overwintering); young-of-year (migrating and foraging); and post yolk-sac larvae (migrating and foraging).

Because this species may be affected by the discharges authorized by the proposed permit, EPA has thoroughly evaluated the potential impacts of the permit action on these anadromous species through the preparation of a Biological Assessment (BA). EPA is in the process of finalizing the BA. On the basis of the evaluation, EPA's preliminary determination is that this action may affect, but is not likely to adversely affect, the life stages of shortnose sturgeon that are expected to inhabit the Connecticut River in the vicinity of the action area of the discharge. Therefore, EPA has judged that a formal consultation pursuant to Section 7 of the ESA is not required. EPA is seeking concurrence from NOAA Fisheries regarding this determination through the information in the Draft Permit, this Fact Sheet, as well as the detailed BA that will be sent to NOAA Fisheries Protected Resources Division during the Draft Permit's public comment period.

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

Reinitiation of consultation will not need to take place unless: (a) 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) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) 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 NOAA Fisheries if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat." 16 U.S.C. § 1855(b).

The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." 16 U.S.C. § 1802(10). "Adverse impact" means any impact that reduces the quality and/or quantity of EFH 50 CFR § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption),

[43] USFWS Project Code: 2023-0041818, February 4, 2023.

indirect (e.g., loss of prey, reduction in species' fecundity), or site specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.
EFH is only designated for fish species for which federal Fisheries Management Plans exist. *See* 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. A New England Fishery Management Council's Omnibus Essential Fish Habitat Amendment in 2017 updated the descriptions. The information is included on the NOAA Fisheries website at: https://www.fisheries.noaa.gov/topic/habitat-conservation. 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.

Based on available EFH information, including the NOAA Fisheries EFH Mapper,[44] EPA has determined that the Connecticut River in the vicinity of the discharge from the Amherst WWTP is designated as EFH for Atlantic salmon (*Salmo salar*). Therefore, consultation with NOAA Fisheries under the Magnuson-Stevens Fishery Conservation and Management Act is required. EPA has determined that the operation of this Facility, as governed by this permit action, may adversely affect the EFH of the Atlantic salmon in the Connecticut River. The Draft Permit has been conditioned in the following way to minimize any impacts that reduce the quality and/or quantity of EFH:

- This Draft Permit action does not constitute a new source of pollutants. It is the reissuance of an existing NPDES Permit;
- TSS, CBOD, total residual chlorine, *E. Coli* and pH are regulated by the Draft Permit to meet State water quality standards;
- EPA's evaluation indicates that there is no reasonable potential for the discharge to cause or contribute to an excursion above water quality criteria for aluminum, cadmium, copper, lead, zinc, or nickel, as the concentrations of these metals in the effluent were well below the maximum allowable concentrations that may be present in the discharge;
- The Draft Permit proposes a new nitrogen limit;
- The Draft Permit requires twice per year toxicity testing to ensure that the discharge does not present toxicity problems;
- The Facility withdraws no water from the Connecticut River, so there will be no impact that reduces the quality and/or quantity of EFH from impingement and entrainment of organisms;
- The Draft Permit prohibits the discharge to cause a violation of State water quality standards;
- The Draft Permit prohibits the discharge of pollutants or combinations of pollutants in toxic amounts;

[44] https://www.habitat.noaa.gov/apps/efhmapper/

- The effluent limitations and conditions in the Draft Permit were developed to be protective of all aquatic life; and

- The proposed Draft Permit requirements minimize any reduction in quality and/or quantity of EFH, either directly or indirectly.

EPA believes that the conditions and limitations contained within the Amherst WWTP Draft Permit adequately protect all aquatic life, as well as the essential fish habitat of Atlantic salmon. 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, NOAA Fisheries Habitat and Ecosystem Services Division will be contacted and an EFH consultation will be reinitiated.

At the beginning of the public comment period, EPA notified NOAA Fisheries Habitat and Ecosystem Services Division that the Draft Permit and Fact Sheet were available for review and provided a link to the EPA NPDES Permit website to allow direct access to the documents. In addition to this Fact Sheet and the Draft Permit, information to support EPA's finding was included in a letter under separate cover and sent to the NOAA Fisheries Habitat and Ecosystem Services Division during the public comment period.

7.0 Public Comments, Hearing Requests and Permit Appeals

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the permit writer, Michele Duspiva at the following email address: duspiva.michele@epa.gov.

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

Following the close of the comment period, and after any public hearings, if such hearings are held, EPA will issue a Final Permit decision, forward a copy of the final decision to the applicant, and provide a copy or notice of availability of the final decision to each person who submitted written comments or requested notice. Within 30 days after EPA serves notice of the issuance of the Final Permit decision, an appeal of the federal NPDES permit may be commenced by filing a petition for review of the permit with the Clerk of EPA's Environmental Appeals Board in accordance with the procedures at 40 CFR § 124.19.

If for any reason, comments on the Draft Permit and/or a request for a public hearing cannot be emailed to the permit writer specified above, please contact them at telephone number: (617) 918-1682.

8.0 Administrative Record

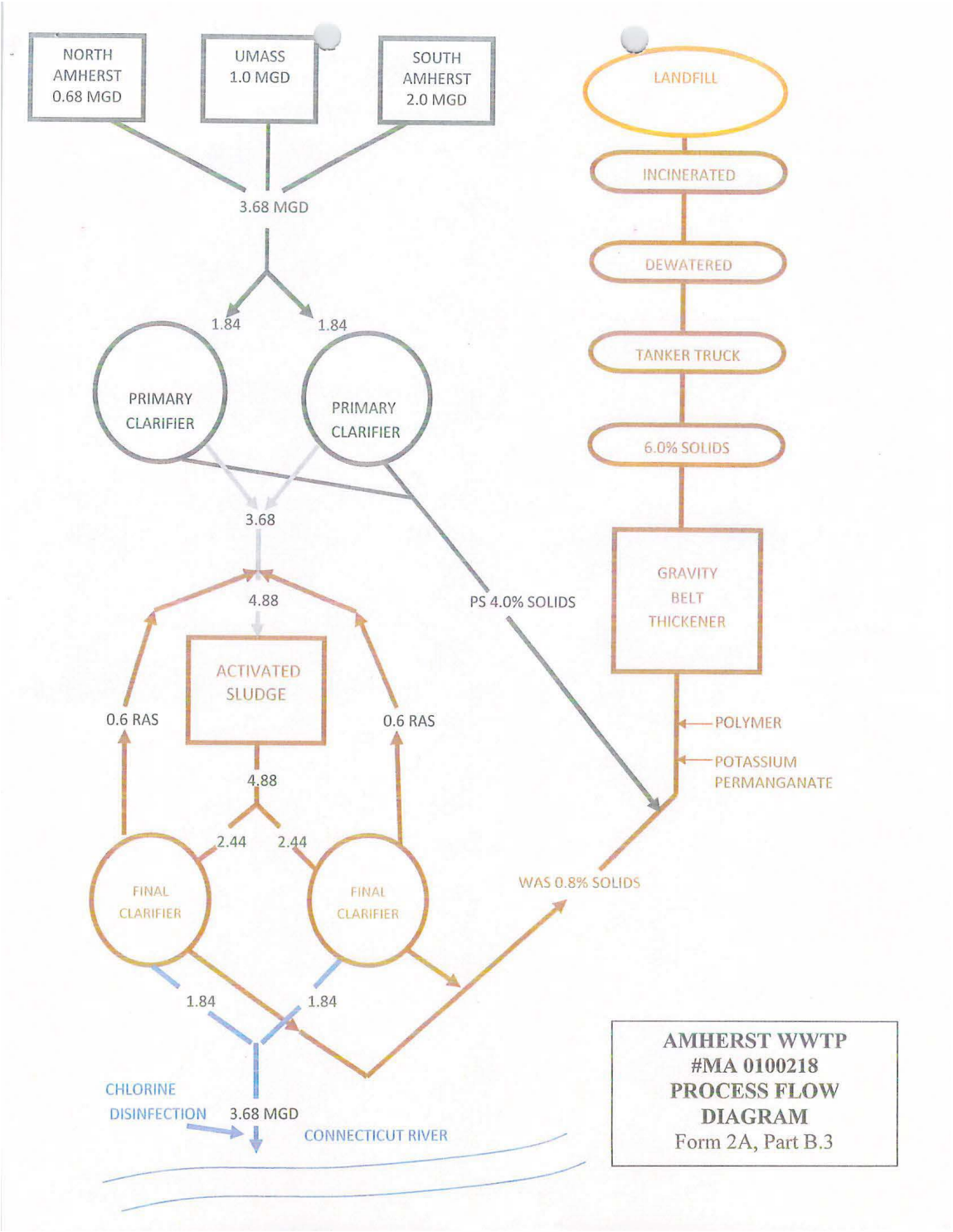
The administrative record on which this Draft Permit is based may be accessed by contacting Michele Duspiva at 617-918-1682 or via email to duspiva.michele@epa.gov.

March 2023
Date

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

Figure 1: Location of the Amherst WWTP

Figure 2: Flow diagram



Outfall 001

Parameter	Flow	Flow	Flow	CBOD	CBOD	CBOD	CBOD
	Annual Rolling Ave	Monthly Ave	Daily Max	Monthly Ave	Monthly Ave	Weekly Ave	Weekly Ave
Units	MGD	MGD	MGD	lb/d	mg/L	lb/d	mg/L
Effluent Limit	Report	7.1	Report	1480	25	2369	40
Minimum	3.181	2.072	2.39	17.8	1	18.9	1
Maximum	4.917	6.584	9.791	210	4.6	427	7.5
Median	3.8015	3.792	5.2635	69.75	2	97.6	3
No. of Violations	N/A	0	N/A	0	0	0	0
10/31/2017	3.356	3.545	5.908	62.1	2	80.4	3
11/30/2017	3.386	3.143	4.297	41.9	1.8	71.6	2
12/31/2017	3.422	3.375	4.32	59.1	2.1	65.3	2.5
1/31/2018	3.495	3.927	5.3	55.8	2	113.6	3
2/28/2018	3.609	5.262	6.571	126.9	3	141.1	4
3/31/2018	3.71	4.929	7.279	113.9	3	143.3	3
4/30/2018	3.712	4.82	6.354	99	2	124	3
5/31/2018	3.674	3.38	6.421	40	1	77	2
6/30/2018	3.618	2.556	4.845	24	1	31	1
7/31/2018	3.63	2.864	4.096	25.1	1	31.2	1
8/31/2018	3.756	3.974	5.042	39.7	1.2	74.7	2
9/30/2018	3.923	5.307	8.444	210	4	427	7
10/31/2018	4.089	5.534	6.895	132.4	3	163.4	4
11/30/2018	4.376	6.584	9.239	139	2.5	157	3
12/31/2018	4.554	5.507	7.197	140.1	3	227.3	6
1/31/2019	4.657	5.161	8.155	93.3	2	162	3
2/28/2019	4.654	5.227	6.09	87.1	2	109.5	3
3/31/2019	4.665	5.063	6.046	95	2	125	3
4/30/2019	4.778	6.174	9.486	115.7	2.4	139.3	3
5/31/2019	4.885	4.674	6.585	56.1	1.3	107	2
6/30/2019	4.917	2.933	3.412	39.4	1.6	51.2	2
7/31/2019	4.908	2.764	3.679	48	2	54.6	3
8/31/2019	4.825	2.976	3.389	44.1	2	52.8	2
9/30/2019	4.667	3.402	4.008	97.6	3.4	123.8	4.5
10/31/2019	4.483	3.334	6.442	67.3	2.3	75.2	2.5
11/30/2019	4.222	3.446	8.531	74.7	2.8	88	3.5
12/31/2019	4.095	3.984	6.815	67.2	1.9	85	2
1/31/2020	3.982	3.81	4.541	47.1	1	72	2
2/29/2020	3.921	4.495	5.227	81.2	2	95.7	3

Outfall 001

Parameter	Flow	Flow	Flow	CBOD	CBOD	CBOD	CBOD
	Annual Rolling Ave	Monthly Ave	Daily Max	Monthly Ave	Monthly Ave	Weekly Ave	Weekly Ave
Units	MGD	MGD	MGD	lb/d	mg/L	lb/d	mg/L
Effluent Limit	Report	7.1	Report	1480	25	2369	40
3/31/2020	3.839	4.076	4.714	56.8	2	88.3	3
4/30/2020	3.657	3.99	5.324	41.9	1	46	1
5/31/2020	3.54	3.227	5.944	32	1.3	51.2	2
6/30/2020	3.465	2.072	2.39	17.8	1	18.9	1
7/31/2020	3.437	2.365	3.448	25.9	1	39.3	2
8/31/2020	3.405	2.593	3.015	32	1	45.1	2
9/30/2020	3.352	2.763	3.004	26.2	1.1	33.8	1.5
10/31/2020	3.314	2.874	3.624	69.6	2.9	87.3	3.5
11/30/2020	3.278	3.021	4.598	69	3	81.4	3
12/31/2020	3.271	3.021	4.598	99	3	149.6	4
1/31/2021	3.268	3.774	4.68	69.9	2	99.5	3
2/28/2021	3.201	3.697	4.449	93.3	3	114.3	3.5
3/31/2021	3.186	3.9	4.734	105.7	3.2	128.4	4
4/30/2021	3.181	3.928	5.534	92.7	2.9	105	3.5
5/31/2021	3.238	3.966	6.871	65.3	2	90	2.5
6/30/2021	3.308	2.926	3.755	73.4	2.9	87.4	3
7/31/2021	3.476	4.389	9.791	91.2	2.7	116.1	3.5
8/31/2021	3.534	3.279	4.202	101.4	3.6	125.4	5
9/30/2021	3.681	4.537	8.855	86.1	2.4	118.8	3
10/31/2021	3.826	4.609	6.758	124.3	3	179.9	3.5
11/30/2021	3.962	4.651	5.779	134.2	3.3	178.9	5
12/31/2021	3.984	4.152	6.648	109.9	3.1	179.8	5
1/31/2022	3.97	3.604	4.074	108.6	3.6	174.7	5.5
2/28/2022	4.037	4.502	6.944	165.6	4.6	247.6	7.5
3/31/2022	4.097	4.623	5.765	62.2	1.6	103.6	2.5
4/30/2022	4.182	4.948	6.29	101.9	2.4	146.1	3
5/31/2022	4.138	3.437	4.496	47.4	1.6	73.8	2
6/30/2022	4.109	2.577	3.192	22	1	24.9	1
7/31/2022	3.933	2.276	2.608	32	1.6	39.2	2
8/31/2022	3.851	2.294	2.795	25.3	1.3	50.7	1.6
9/30/2022	3.777	3.652	5.109	76.7	2.5	104.5	3.4

Outfall 001

Parameter	CBOD	CBOD	TSS	TSS	TSS	TSS	TSS	TSS
	Daily Max	Monthly Ave Min	Monthly Ave	Monthly Ave	Monthly Ave Min	Weekly Ave	Weekly Ave	Daily Max
Units	mg/L	%	lb/d	mg/L	%	lb/d	mg/L	mg/L
Effluent Limit	Report	85	1776	30	85	2665	45	Report
Minimum	1	93.8	19.7	1	95.5	24.9	1	1
Maximum	10	99.6	171.9	6	99.6	344.7	12	21
Median	3	98.6	64.45	2	98.7	108.45	3	3
No. of Violations	N/A	0	0	0	0	0	0	N/A
10/31/2017	3	99.1	106	4	98.6	120	5	5
11/30/2017	2	99.2	47.2	1.8	99.3	49.9	2	2
12/31/2017	3	98.9	59.1	2	99.2	97	3	3
1/31/2018	3	98.8	61.5	2	99.1	111.3	3	3
2/28/2018	4	98.3	157.9	3.6	97.8	180.7	4	4
3/31/2018	3	98.5	127.3	3	98.2	191.1	4	4
4/30/2018	3	99.2	111	3	99	124	3	3
5/31/2018	2	99.5	39	1	99.6	77	2	2
6/30/2018	1	99.6	33	1	99.5	49	2	2
7/31/2018	1	99.4	25.1	1	99.5	31.2	1	1
8/31/2018	2	99.1	62	2	98.9	85	2	2
9/30/2018	10	97.4	37	--	95.5	92	--	--
10/31/2018	4	98.4	133.2	3	98.7	187.4	4	4
11/30/2018	3	98.1	116.7	3	97.7	209.3	4	4
12/31/2018	7	98	124.9	3	98.2	171.5	4	4
1/31/2019	3	98.6	95.4	2	98.7	162	3	3
2/28/2019	3	98.7	98.9	2	98.9	110.5	3	3
3/31/2019	3	98.4	94.3	2	98.9	111.4	3	3
4/30/2019	4	98.1	138.8	3	98.5	166.4	3	3
5/31/2019	2	98.7	61.6	1.4	99.2	119.4	3	3
6/30/2019	2	98.7	39.1	1.6	99.3	62.5	2.5	3
7/31/2019	3	98.7	52.9	2	99.3	68.3	3	3
8/31/2019	2	98.6	52	2.1	99.2	65	2.5	3
9/30/2019	6	98.4	171.9	6	98.6	344.7	12	21
10/31/2019	3	98.9	104.7	4	99.2	130.4	4.5	6
11/30/2019	6	98.6	72.6	2.6	99.3	88	3	3
12/31/2019	2	97.3	87.4	2.4	97.1	127.5	3	3
1/31/2020	2	98.7	72.1	2	98.4	108.1	3	3
2/29/2020	3	98.2	105.6	3	98.3	123.1	3	3

Outfall 001

Parameter	CBOD	CBOD	TSS	TSS	TSS	TSS	TSS	TSS
	Daily Max	Monthly Ave Min	Monthly Ave	Monthly Ave	Monthly Ave Min	Weekly Ave	Weekly Ave	Daily Max
Units	mg/L	%	lb/d	mg/L	%	lb/d	mg/L	mg/L
Effluent Limit	Report	85	1776	30	85	2665	45	Report
3/31/2020	3	98.2	63.8	2	98.3	88.3	3	3
4/30/2020	1	98	47.6	1.1	99.1	71.3	1.5	2
5/31/2020	3	98.1	28.6	1.1	98.9	34.6	1.5	2
6/30/2020	1	99.4	19.7	1.1	99.3	27.1	1.5	2
7/31/2020	2	99.1	32.5	1.6	99.4	49.8	2	3
8/31/2020	3	98.6	24.6	1	99	45.1	2	2
9/30/2020	2	99.4	29	1.3	99.1	35.4	1.5	2
10/31/2020	4	98.6	89.2	4	98.4	115	4	5
11/30/2020	3	98.6	56.3	2.1	98.9	81.4	3	3
12/31/2020	5	97.7	116.6	3.7	97.4	149.6	4.5	5
1/31/2021	4	98.5	61.5	2	98.4	65.6	2	2
2/28/2021	4	98	81.5	3	97.7	129.7	4	4
3/31/2021	5	97.4	84.2	2.6	98.1	128.7	4	6
4/30/2021	4	97.6	82.7	2.6	98.4	108.8	3	4
5/31/2021	3	97.9	46.2	1.5	98.8	53.8	2	2
6/30/2021	3	97.9	34.8	1.3	98.6	58.3	2	2
7/31/2021	4	93.8	53.7	1.4	95.9	116.1	2.5	3
8/31/2021	6	97.2	60.7	2.1	98.1	80.2	2.5	3
9/30/2021	3	98.5	91.4	2.5	98.2	118.8	3	4
10/31/2021	4	98.4	82.7	2	98.5	106.9	2.5	3
11/30/2021	5	97.6	129.8	3.2	97.4	171.1	4	4
12/31/2021	5	98.2	109.7	3.1	97.3	155.1	4.5	6
1/31/2022	6	97.7	92.6	3.1	96.7	127.1	4	5
2/28/2022	9	97.2	89	2.5	97.8	129.4	4	6
3/31/2022	3	98.9	54.5	1.4	98.7	83.5	2	3
4/30/2022	3	97.8	65.1	1.5	97.5	119.9	2.5	3
5/31/2022	2	99.1	43	1.4	98.8	73.8	2	2
6/30/2022	1	99.4	22	1	99.5	24.9	1	1
7/31/2022	3	98.9	22.1	1.1	99.3	29	1.5	2
8/31/2022	2.3	99.2	26.1	1.3	99.2	39.7	1.9	2
9/30/2022	3.5	98.9	147.6	4.5	98.6	228.9	6.2	6.6

Outfall 001

Parameter	pH	pH	E. coli	E. coli	TRC	TKN	TKN	TN
	Minimum	Maximum	Monthly Geometric Mean	Daily Max	Daily Max	Monthly Ave	Monthly Ave	Monthly Ave
Units	SU	SU	CFU/100mL	CFU/100mL	mg/L	lb/d	mg/L	lb/d
Effluent Limit	6	8.3	126	409	1	Report	Report	Report
Minimum	6.2	6.7	1	1	0.69	23.8	1.1	138.8
Maximum	7	7.6	30.5	2420	1.3	476.8	15.5	667.8
Median	6.7	7.1	1.74	14	0.83	156	4.2	301.9
No. of Violations	0	0	0	7	3	N/A	N/A	N/A
10/31/2017	6.7	7	1	1	0.74	103.5	3.5	387.3
11/30/2017	6.5	6.9				94.4	3.6	340.8
12/31/2017	6.5	7.2				112.6	5.9	337.7
1/31/2018	6.7	7.2				141.6	3.8	287.8
2/28/2018	6.6	7.4				432.2	10	586.3
3/31/2018	6.7	7.3				367.9	8.5	487.2
4/30/2018	6.8	7.3	1.28	9	0.73	305	7.3	372
5/31/2018	6.7	7.2	1.87	90	0.78	49	1.5	184
6/30/2018	6.9	7.2	1.74	42	0.87	35	1.4	147
7/31/2018	6.9	7.2	1	1	0.76	56.1	2.2	180.9
8/31/2018	7	7.2	1.23	4	0.7	90.8	2.8	260.8
9/30/2018	7	7.3	1.56	6	0.69	395	7.8	656.5
10/31/2018	7	7.3	2	86	0.93	301	4.1	496.9
11/30/2018	6.8	7.2				240.4	4.7	516.2
12/31/2018	6.8	7.1				154.5	3.4	370.1
1/31/2019	6.8	7.1				169.6	2.1	283.1
2/28/2019	6.7	7.6				196.4	4.5	364.1
3/31/2019	6.7	7.1				186.5	4.3	344.1
4/30/2019	6.8	7.2	1.7	4	0.85	347.4	7	541.2
5/31/2019	6.8	7.1	1.55	53	0.81	106.6	2.4	293.4
6/30/2019	6.7	7.1	1.36	12	0.77	61.4	2.3	220.4
7/31/2019	6.9	7.2	2.83	75	0.69	163.3	7	244.3
8/31/2019	6.8	7.3	1.36	2	0.83	77.6	3.1	207.7
9/30/2019	6.8	7.2	30.5	77	0.83	162.9	5.5	389.7
10/31/2019	6.7	7.4	2.7	17	0.89	329.5	11.1	667.8
11/30/2019	6.7	7.3				240.2	8.3	531.8
12/31/2019	6.6	7.2				173.3	4.6	414.1
1/31/2020	6.4	7				118	3.5	297.3
2/29/2020	6.5	6.9				166.1	4.3	443

Outfall 001

Parameter	pH	pH	E. coli	E. coli	TRC	TKN	TKN	TN
	Minimum	Maximum	Monthly Geometric Mean	Daily Max	Daily Max	Monthly Ave	Monthly Ave	Monthly Ave
Units	SU	SU	CFU/100mL	CFU/100mL	mg/L	lb/d	mg/L	lb/d
Effluent Limit	6	8.3	126	409	1	Report	Report	Report
3/31/2020	6.4	6.7				81.6	2.4	306.5
4/30/2020	6.4	6.7	6.48	1733	0.97	48.9	1.2	255.2
5/31/2020	6.5	6.8	1.22	5	0.83	34.6	1.4	156.8
6/30/2020	6.4	6.9	3.625	2420	0.88	43.2	2.4	138.8
7/31/2020	6.6	7	1	1	0.79	67.1	3.2	185.4
8/31/2020	6.7	7	1	1	0.88	72	3.3	222
9/30/2020	6.6	6.9	1	1	0.97	110.6	4.7	295.6
10/31/2020	6.6	6.9	1.17	4	0.98	105	4.3	295.7
11/30/2020	6.7	7				157.5	6	312.1
12/31/2020	6.6	6.9				182.6	6	287.5
1/31/2021	6.5	7.1				298	9.8	377.3
2/28/2021	6.8	7.3				476.8	15.5	552.9
3/31/2021	6.7	7.1				273.4	8.3	358.1
4/30/2021	6.9	7	1.1	3	0.82	207.4	6.4	271.4
5/31/2021	6.7	7	1.3	6	0.72	163.1	4.5	230.5
6/30/2021	6.6	7	5.6	2420	0.86	101	3.9	158.3
7/31/2021	6.7	7	8.7	1120	0.88	120	3.6	215.4
8/31/2021	6.9	7.2	2	14	0.82	210	7.1	358.9
9/30/2021	6.9	7.1	1.2	4	0.9	231.9	6.4	312.2
10/31/2021	6.2	7.1	3.3	29	0.72	229.2	5.5	323.2
11/30/2021	6.7	7				163.7	4	270.4
12/31/2021	6.7	7.1				111.4	3.2	190.9
1/31/2022	6.8	7.2				123.4	4.1	222.8
2/28/2022	6.8	7.2				223	6.2	341.5
3/31/2022	6.6	7.2				124.9	3.2	318.9
4/30/2022	6.7	7	2	46	0.95	214.2	5.1	476.4
5/31/2022	6.7	6.9	2.9	2419.6	0.91	65.8	2	253.9
6/30/2022	6.7	6.9	2.5	2419.6	1.13	23.8	1.1	174.8
7/31/2022	6.7	6.9	6.4	2420	1.3	34.1	1.7	175.5
8/31/2022	6.61	6.91	2.25	7.3	1.19	40	2	181.2
9/30/2022	6.71	7.13	1.99	43.5	0.72	341.9	10.9	585.9

Outfall 001

Parameter	TN	Nitrate	Nitrate	Nitrite	Nitrite	TP	Nitrogen, ammonia (NH3-N)	Nitrogen, ammonia (NH3-N)
	Monthly Ave	Monthly Ave	Monthly Ave	Monthly Ave	Monthly Ave	Monthly Ave	Monthly Ave	Monthly Ave
Units	mg/L	lb/d	mg/L	lb/d	mg/L	mg/L	lb/d	mg/L
Effluent Limit	Report	Report	Report	Report	Report	Report	Report	Report
Minimum	**5.4**	**33.9**	**1.3**	**2.83**	**0.1**	**0.6**	**4.2**	**0.2**
Maximum	**108**	**1665**	**11.1**	**72.8**	**10.7**	**4.7**	**400**	**12.9**
Median	**9.1**	**139.5**	**4.65**	**10.5**	**0.4**	**2**	**93.35**	**2.8**
No. of Violations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/31/2017	13.1	272	9.2	8.9	0.3	4.3	65	2.2
11/30/2017	13	238.5	9.1	7.9	0.3	2.9	60.3	2.3
12/31/2017	14.8	216.7	8.7	8.4	0.4	3.4	67.5	2.4
1/31/2018	8.7	138.4	4.6	8.3	0.2	2.1	114.7	3
2/28/2018	13.6	127.4	3	24.6	0.6	1.7	369.1	8.5
3/31/2018	11.4	87.8	2.1	32.5	0.8	0.6	327.1	7.5
4/30/2018	108	120	2.9	23	0.6	1.9	266	6.5
5/31/2018	6.1	131	4.5	4	0.1	1.7	31	0.9
6/30/2018	6.1	109	4.5	3.18	0.1	2.3	18.5	0.7
7/31/2018	7.1	119.3	4.7	5.48	0.2	2.3	35.6	1.4
8/31/2018	8.1	1665	5.2	3.85	0.1	1.5	65.9	2
9/30/2018	13.5	249	5.5	14.2	0.3	2.6	310	6.2
10/31/2018	10.5	174.8	3.7	20.8	0.5	3	186.9	4.2
11/30/2018	9	247.3	4.3	30.3	0.5	1.4	163.2	2.8
12/31/2018	8.4	191.4	4.4	25.2	0.5	2	84.9	1.8
1/31/2019	6.2	103.9	3.8	11.3	0.2	1	77.3	1.5
2/28/2019	8.3	156.3	3.5	12	0.3	1.6	137.7	3.3
3/31/2019	8	149.5	3.6	8.6	0.2	1.6	153.3	3.5
4/30/2019	11	187.7	3.8	6.49	0.2	1	264.1	5.3
5/31/2019	7.1	182.4	4.7	5	10.7	1.1	67.2	1.4
6/30/2019	8.3	153.9	5.8	5.6	0.2	1.7	33.6	1.3
7/31/2019	10.9	83.9	3.5	8.9	0.4	1.9	140.4	5.7
8/31/2019	8.4	120.8	4.9	9.4	0.4	2.1	43.1	1.7
9/30/2019	13.2	214.7	7.3	15.3	0.5	3.4	101.2	3.4
10/31/2019	22.8	322	11.1	16.1	0.6	4.7	257.7	8.7
11/30/2019	18.7	292.8	10.4	18	0.6	4.2	149.6	5.2
12/31/2019	11.3	220.5	6.2	19.4	0.5	3.5	106.3	2.8
1/31/2020	9.1	170.8	5.3	8.7	0.3	1.7	85.5	2.5
2/29/2020	11.6	263.4	6.9	15.3	0.4	2.2	101.4	2.7

Outfall 001

Parameter	TN	Nitrate	Nitrate	Nitrite	Nitrite	TP	Nitrogen, ammonia (NH3-N)	Nitrogen, ammonia (NH3-N)
	Monthly Ave	Monthly Ave	Monthly Ave	Monthly Ave	Monthly Ave	Monthly Ave	Monthly Ave	Monthly Ave
Units	mg/L	lb/d	mg/L	lb/d	mg/L	mg/L	lb/d	mg/L
Effluent Limit	Report	Report	Report	Report	Report	Report	Report	Report
3/31/2020	9.1	218.6	6.5	6.8	0.2	3	49.1	1.4
4/30/2020	6.1	202.5	4.8	4.18	0.1	2.2	19.8	0.5
5/31/2020	6.2	119.4	4.7	2.83	0.1	1.7	15.5	0.6
6/30/2020	7.8	91.7	5.2	4	0.2	1.8	27.8	1.6
7/31/2020	9.1	111.9	5.6	7.3	0.4	1.9	46.5	2.2
8/31/2020	10	140.6	6.3	9.4	0.4	2.9	62.5	2.8
9/30/2020	12.7	176.3	7.6	8.48	0.4	2.9	79.4	3.4
10/31/2020	12.2	183.2	7.6	7.2	0.3	3.6	76	3.1
11/30/2020	11.9	146.4	5.6	8.2	0.3	3	115	4.4
12/31/2020	9.3	94.7	3	9.7	0.3	1.2	138.7	4.5
1/31/2021	12.4	65.1	2.1	13.4	0.4	1.3	224.8	7.4
2/28/2021	17.8	66.3	2.1	28.4	0.9	2	400	12.9
3/31/2021	10.9	51.3	1.6	33.5	1	1.5	202.4	6.1
4/30/2021	8.3	44.9	1.4	20.6	0.6	1.4	159.7	4.9
5/31/2021	6.5	43.7	1.3	25.6	0.8	0.7	106.4	2.8
6/30/2021	6.2	33.9	1.3	23.6	0.9	1.8	61.2	2.4
7/31/2021	6.4	47.3	1.4	49	1.4	0.7	60.9	1.9
8/31/2021	12.4	76.3	2.7	72.8	2.6	2	131.1	4.4
9/30/2021	8.6	53.3	1.5	26.5	0.7	3.1	169.3	4.7
10/31/2021	7.8	62.4	1.5	34	0.8	1.7	149.9	3.6
11/30/2021	6.7	71.2	1.8	35	0.9	1.7	104.9	2.5
12/31/2021	5.4	54.1	1.5	25.7	0.7	2.7	56	1.6
1/31/2022	7.4	54.8	1.8	45.8	1.5	2	54.5	1.7
2/28/2022	9.4	67.1	1.8	51.3	1.4	1.5	147.5	4.1
3/31/2022	8.1	170.4	4.3	23.4	0.6	1.2	79.9	2
4/30/2022	11.4	256.4	6.1	6.8	0.2	1.5	175.9	4.2
5/31/2022	8.3	183.7	6.2	3.7	0.1	2.5	40.4	1.2
6/30/2022	8	146.4	6.7	3.8	0.2	2.2	4.2	0.2
7/31/2022	8.9	135.7	6.9	5.9	0.3	2.7	6.9	0.4
8/31/2022	9.3	137.4	7.1	5.4	0.3	2.67	7.5	0.4
9/30/2022	18.8	238	7.5	13.8	0.4	3.8	333.6	9.9

WET Effluent

Parameter	LC50 Acute Ceriodaphnia	Ammonia	Aluminum	Cadmium	Copper	Lead	Nickel	Zinc
	Daily Min	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Effluent Limit	50	Report	Report	Report	Report	Report	Report	Report
Minimum	100	0.15	0	0	0.005	0	0	0.022
Maximum	100	7.34	0.029	0	0.0116	0	0.003	0.045
Median	100	1.72	0.015	Non-Detect	0.0061	Non-Detect	0.002	0.028
No. of Violations	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/31/2017	100	1.73	<0.005	<0.0001	0.007	<0.0003	0.002	0.045
12/31/2017								
6/30/2018	100	0.64	0.029	<0.0001	0.0057	<0.0003	<0.001	0.03
10/31/2018	100	1.09	0.027	<0.0001	0.0054	<0.0003	0.002	0.028
6/30/2019	100	0.59	0.028	<0.0001	0.005	<0.0003	0.002	0.022
10/31/2019	100							
6/30/2020	100	1.72	0.017	<0.0001	0.0107	<0.0003	0.002	0.028
10/31/2020	100	2.91	0.015	<0.0001	0.0096	<0.0003	0.003	0.037
6/30/2021	100	2.3	0.011	<0.0001	0.0053	<0.0003	0.002	0.024
10/31/2021	100	7.34	0.01	<0.0001	0.0061	<0.0003	0.002	0.031
6/30/2022	100	0.15	0.015	<0.0001	0.0116	<0.0003	0.002	0.023

WET Effluent

Parameter	Hardness
	Daily Max
Units	mg/L
Effluent Limit	Report
Minimum	71
Maximum	110
Median	78.4
No. of Violations	N/A
10/31/2017	76.2
12/31/2017	
6/30/2018	110
10/31/2018	93.1
6/30/2019	94.3
10/31/2019	
6/30/2020	81.7
10/31/2020	78.4
6/30/2021	78.1
10/31/2021	71
6/30/2022	75.7

WET Ambient

Parameter	pH	Ammonia	Aluminum	Cadmium	Copper	Lead	Nickel	Zinc
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	S.U.	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Minimum	**6.62**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Maximum	**7.79**	**0.08**	**0.126**	**0**	**0.0019**	**0**	**0.002**	**0.005**
Median	**7.29**	**0.07**	**0.044**	**Non-Detect**	**Non-Detect**	**Non-Detect**	**Non-Detect**	**Non-Detect**
10/31/2017	7.18	0.08	0.012	<0.0001	<0.001	<0.0003	<0.001	<0.001
12/31/2017								
6/30/2018	7.53	0.08	0.039	<0.0001	<0.002	<0.0003	<0.001	<0.002
10/31/2018	7.18	0.08	0.1	<0.0001	0.0011	<0.0003	<0.001	0.003
6/30/2019	7.79	<0.05	0.126	<0.0001	<0.002	<0.0003	0.002	<0.004
10/31/2019								
6/30/2020	7.7	<0.05	0.053	<0.0001	<0.001	<0.0003	<0.001	<0.002
10/31/2020	7.29	<0.05	0.029	<0.0001	<0.002	<0.0003	<0.001	<0.004
6/30/2021	7.48	<0.05	0.044	<0.0001	<0.002	<0.0003	<0.001	<0.004
10/31/2021	6.62	0.07	0.072	<0.0001	0.0019	<0.0003	<0.001	0.005
6/30/2022	7.18	0.07	0.038	<0.0001	0.001	<0.0003	<0.001	<0.002

WET Ambient

Parameter	Hardness
	Daily Max
Units	mg/L
Minimum	0
Maximum	45.6
Median	40.5
10/31/2017	45.6
12/31/2017	
6/30/2018	42
10/31/2018	34.5
6/30/2019	34
10/31/2019	
6/30/2020	40.1
10/31/2020	40.5
6/30/2021	43.4
10/31/2021	36.8
6/30/2022	41.8

A reasonable potential analysis is completed using a single set of critical conditions for flow and pollutant concentration that will ensure the protection of water quality standards. To determine the critical condition of the effluent, EPA projects an upper bound of the effluent concentration based on the observed monitoring data and a selected probability basis. EPA generally applies the quantitative approach found in Appendix E of EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD)[1] to determine the upper bound of the effluent data. This methodology accounts for effluent variability based on the size of the dataset and the occurrence of non-detects (i.e., samples results in which a parameter is not detected above laboratory detection limits). For datasets of 10 or more samples, EPA uses the upper bound effluent concentration at the 95th percentile of the dataset. For datasets of less than 10 samples, EPA uses the maximum value of the dataset.

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

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

Where:

C_s = upstream concentration (median value of available ambient data)
Q_s = upstream flow (7Q10 flow upstream of the outfall)
C_e = effluent concentration (95th percentile or maximum of effluent concentration)
Q_e = effluent flow of the facility (design flow)
C_d = downstream concentration
Q_d = downstream flow ($Q_s + Q_e$)

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

When both the downstream concentration (C_d) and the effluent concentration (C_e) exceed the applicable criterion, there is reasonable potential for the discharge to cause, or contribute to an excursion above the water quality standard. *See* 40 C.F.R. § 122.44(d). When EPA determines that a discharge causes, has the reasonable potential to cause, or contribute to such an excursion, the permit must contain WQBELs for the parameter. *See* 40 C.F.R. § 122.44(d)(1)(iii). Limits are calculated by using the criterion as the downstream concentration (C_d) and rearranging the mass balance equation to solve for the effluent concentration (C_e).

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

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

The table below presents the reasonable potential calculations and, if applicable, the calculation of the limits required in the permit. Refer to the pollutant-specific section of the Fact Sheet for a detailed discussion of these calculations, any assumptions that were made and the resulting permit requirements.

Pollutant	Conc. Units	Q_s (MGD)	C_s [1]	Q_e (MGD)	C_e [2]		Q_d (MGD)	C_d		Criteria		Reasonable Potential		Limits	
					Acute	Chronic		Acute	Chronic	Acute	Chronic	C_e & C_d > Acute Criteria	C_e & C_d > Chronic Criteria	Acute	Chronic
Aluminum	µg/L	1244.2	44	7.1	29.0	29.0	1251.3	43.9	43.9	600.0	290.0	N	N	N/A	N/A
Cadmium	µg/L	1244.2	0	7.1	0.0	0.0	1251.3	0.0	0.0	0.8	0.4	N	N	N/A	N/A
Copper	µg/L	1244.2	0	7.1	11.6	11.6	1251.3	0.1	0.1	6.0	4.3	N	N	N/A	N/A
Lead	µg/L	1244.2	0	7.1	0.0	0.0	1251.3	0.0	0.0	26.0	1.0	N	N	N/A	N/A
Nickel	µg/L	1244.2	0	7.1	3.0	3.0	1251.3	0.0	0.0	219.4	24.4	N	N	N/A	N/A
Zinc	µg/L	1244.2	0	7.1	45.0	45.0	1251.3	0.3	0.3	56.0	56.0	N	N	N/A	N/A
Ammonia (Cold)	mg/L	1244.2	0	7.1	8.7	8.7	1251.3	0.05	0.05	17.7	3.8	N	N	N/A	N/A
Ammonia (Warm)	mg/L	1244.2	0.07	7.1	10.1	10.1	1251.3	0.1	0.1	8.1	1.2	N	N	N/A	N/A
Phosphorus	mg/L	1244.2	0.015	7.1	N/A	4.1	1251.3	N/A	0.04	N/A	0.1	N	N	N/A	N/A

[1]Median concentration for the receiving water just upstream of the facility's discharge taken from the WET testing data during the review period (see Appendix A).

[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. If the pollutant already has a WQBEL (for either acute or chronic conditions), the value represents the existing limit.

APPENDIX C

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

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

Permit #	Name	Type	Design Flow (MGD)	2014-2018 Avg Flow (MGD)	2014 Average Load (lb/day)	2015 Average Load (lb/day)	2016 Average Load (lb/day)	2017 Average Load (lb/day)	2018 Average Load (lb/day)	2014-2018 Avg Load (lb/day)
Total Massachusetts Out-of-Basin Load			**262**	**146**	**11,528**	**11,215**	**9,767**	**10,557**	**10,631**	**10,740**
Total Massachusetts Connecticut River Load			**179.6**	**98**	**9,184**	**8,945**	**7,695**	**8,390**	**8,341**	**8,511**
MA0101613	SPRINGFIELD REGIONAL WTP	POTW	67.00	36.26	2,303	2,377	1,643	1,953	1,684	1,992
MA0101508	CHICOPEE WPC	POTW	15.50	7.83	2,220	2,092	1,854	1,872	1,895	1,987
MA0101630	HOLYOKE WPCF	POTW	17.50	8.05	584	644	687	747	593	651
MA0101214	GREENFIELD WPCF	POTW	3.20	3.23	436	467	460	386	482	446
MA0100994	GARDNER WWTF	POTW	5.00	2.89	413	470	377	455	404	424
MA0101818	NORTHAMPTON WWTP	POTW	8.60	3.85	489	412	355	393	453	420
MA0100218	AMHERST WWTP	POTW	7.10	3.76	456	411	335	342	377	384
MA0100455	SOUTH HADLEY WWTF	POTW	4.20	2.37	393	325	288	364	315	337
MA0101478	EASTHAMPTON WWTP	POTW	3.80	3.44	202	186	262	329	639	324
MA0101800	WESTFIELD WWTP	POTW	6.10	2.88	276	225	221	189	211	224
MA0110264	AUSTRALIS AQUACULTURE, LLC	IND	0.30	0.13	149	138	116	107	74	117
MA0101168	PALMER WPCF	POTW	5.60	1.47	142	92	84	100	125	109
MA0100137	MONTAGUE WWTF	POTW	1.80	0.84	107	78	55	215	78	107
MA0100099	HADLEY WWTP	POTW	0.54	0.38	73	76	65	109	67	78
MA0100889	WARE WWTP	POTW	1.00	0.55	62	89	87	72	78	77
MA0101257	ORANGE WWTP	POTW	1.10	0.98	72	62	58	91	91	75
MA0003697	BARNHARDT MANUFACTURING	IND	0.89	0.33	58	78	49	54	96	67
MA0103152	BARRE WWTF	POTW	0.30	0.19	77	81	50	50	49	61
MA0101567	WARREN WWTP	POTW	1.50	0.26	45	42	124	38	55	61
MA0000469	SEAMAN PAPER OF MASSACHUSETTS	IND	1.10	0.83	26	97	53	62	46	57
MA0100005	ATHOL WWTF	POTW	1.75	0.79	76	56	40	39	44	51
MA0101061	NORTH BROOKFIELD WWTP	POTW	0.62	0.32	62	51	40	47	50	50
MA0110043	MCLAUGHLIN STATE TROUT HATCHERY	IND	7.50	7.12	39	44	43	41	37	41
MA0100919	SPENCER WWTP	POTW	1.08	0.35	28	33	31	29	71	38

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

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

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

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

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

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

NOTES:

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

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

3) Term = Permit was terminated in that year

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

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

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

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

NOTES:

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

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

3) Term = Permit was terminated in that year

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

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

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

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

NOTES:

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

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

3) Term = Permit was terminated in that year

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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY – REGION 1 (EPA)
WATER DIVISION
5 POST OFFICE SQUARE
BOSTON, MASSACHUSETTS 02109

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (MASSDEP)
COMMONWEALTH OF MASSACHUSETTS
1 WINTER STREET
BOSTON, MASSACHUSETTS 02108

EPA PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO WATERS OF THE UNITED STATES UNDER SECTION 402 OF THE CLEAN WATER ACT (CWA), AS AMENDED, AND MASSDEP PUBLIC NOTICE OF EPA REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE CWA.

PUBLIC NOTICE PERIOD: **March 30, 2023 – April 28, 2023**

NAME AND MAILING ADDRESS OF APPLICANT:

Town of Amherst Department of Public Works
586 South Pleasant Street,
Amherst, Massachusetts 01002

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Amherst Wastewater Treatment Plant
100 Mullins Way
Hadley, Massachusetts 01035

RECEIVING WATER AND CLASSIFICATION:

Connecticut River (Class B)

PREPARATION OF THE DRAFT PERMIT AND EPA REQUEST FOR CWA § 401 CERTIFICATION:

EPA is issuing for public notice and comment the Draft NPDES Permit for the Amherst WWTP, which discharges treated domestic, industrial, and commercial wastewater. The effluent limits and permit conditions have been drafted pursuant to, and assure compliance with, the CWA, including EPA-approved State Surface Water Quality Standards at 314 CMR 4.00. MassDEP cooperated with EPA in the development of the Draft NPDES Permit. MassDEP retains independent authority under State law to publish for public notice and issue a separate Surface Water Discharge Permit for the discharge, not the subject of this notice, under the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53.

In addition, EPA has requested that MassDEP grant or deny certification of this Draft Permit pursuant to Section 401 of the CWA and implementing regulations. Under federal regulations governing the NPDES program at 40 Code of Federal Regulations (CFR) § 124.53(e), state certification shall contain conditions that are necessary to assure compliance with the applicable provisions of CWA sections 208(e), 301, 302, 303, 306, and 307 and with appropriate requirements of State law, including any conditions more stringent than those in the Draft Permit that MassDEP finds necessary to meet these requirements. Furthermore, MassDEP may provide a statement of the extent to which each condition of the Draft Permit can be made less stringent without violating the requirements of State law.

INFORMATION ABOUT THE DRAFT PERMIT:

The Draft Permit and explanatory Fact Sheet may be obtained at no cost at https://www.epa.gov/npdes-permits/massachusetts-draft-individual-npdes-permits or by contacting:

Michele Duspiva
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (06-4)
Boston, MA 02109-3912
Telephone: (617) 918-1682
Email: duspiva.michele@epa.gov

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

PUBLIC COMMENT AND REQUESTS FOR PUBLIC HEARINGS:

All persons, including applicants, who believe any condition of this Draft Permit is inappropriate must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by April 28, 2023**,** which is the close of the public comment period. Comments, including those pertaining to EPA's request for CWA § 401 certification, should be submitted to the EPA contact at the address or email listed above. Upon the close of the public comment period, EPA will make all comments available to MassDEP. All commenters who want MassDEP to consider their comments in the state decision-making processes (i.e., the separate state permit and the CWA § 401 certification) must submit such comments to MassDEP during the state comment period for the state Draft Permit and CWA § 401 certification. For information on submitting such comments to MassDEP, please follow the instructions found in the state public notice at: https://www.mass.gov/service-details/massdep-public-hearings-comment-opportunities.

Any person, prior to the close of the EPA public comment period, may submit a request in writing to EPA for a public hearing on the Draft Permit under 40 CFR § 124.10. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice if the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on this Draft Permit, the Regional Administrator will respond to all significant comments and make the responses available to the public.

Due to the COVID-19 National Emergency, if comments are submitted in hard copy form, please also email a copy to the EPA contact above.

FINAL PERMIT DECISION:

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and notify the applicant and each person who has submitted written comments or requested notice.

KEN MORAFF, DIRECTOR
WATER DIVISION
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY – REGION 1

LEALDON LANGLEY, DIRECTOR
DIVISION OF WATERSHED MGMT
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION