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"),

City of Keene, New Hampshire

is authorized to discharge from the facility located at

Keene Wastewater Treatment Plant
420 Airport Road
Swanzey, NH 03446

to receiving water named

Ashuelot River

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

The municipalities of Marlborough and Swanzey are co-Permittees for Part B, Unauthorized Discharges; Part C, Operation and Maintenance, which include conditions regarding the operation and maintenance of the collection systems owned and operated by the Towns; and Part D, Alternate Power Source.

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the terms and conditions of Parts B, C, and D of this permit. The Permittee and each co-permittee are severally liable under Parts B, C, and D for their own activities and required reporting with respect to the portions of the collection system that they own or operate. They are not liable for violations of Parts B, C and D committed by others relative to the portions of the collection system owned and operated by others. Nor are they responsible for any reporting that is required of other Permittees under Parts B, C, and D. The responsible Town departments are:

Town of Marlborough Board of Selectmen P.O. Box 487 Marlborough, NH 03455	Town of Swanzey Swanzey Sewer Commission P.O. Box 10009 Swanzey, NH 03446

This permit shall become effective on December 1, 2021.

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 August 24, 2007.

This permit consists of the cover page(s), **Part I**; **Attachment A** (Freshwater Acute Toxicity Test Procedure and Protocol, February 2011); **Attachment B** (Freshwater Chronic Toxicity Test Procedure and Protocol, March 2013); **Attachment C** (Reassessment of Technically Based Industrial Discharge Limits); **Attachment D** (NPDES Permit Requirement for Industrial Pretreatment Annual Report) and **Part II (**NPDES Part II Standard Conditions, April 2018).

Signed this day of

KENNETH MORAFF Digitally signed by KENNETH MORAFF Date: 2021.09.13 09:00:57 -04'00'

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

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 sanitary and industrial wastewater through Outfall Serial Number 001 to the Ashuelot 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]	6.0 MGD [5]	---	---	Continuous	Recorder
Effluent Flow[5]	Report MGD	---	Report MGD	Continuous	Recorder
$CBOD_5$	25 mg/L 1252 lb/day	40 mg/L 2003 lb/day	45 mg/L 2253 lb/day	2/week	Composite
$CBOD_5$ Removal	≥ 85 %	---	---	---	Calculation
TSS	30 mg/L 1502 lb/day	45 mg/L 2253 lb/day	50 mg/L 2504 lb/day	2/week	Composite
TSS Removal	≥ 85 %	---	---	---	Calculation
pH Range[6]	6.5 - 8.0 S.U.			1/day	Grab
Escherichia coli [7]	126 E.coli/100 mL	---	406 E.coli/100 mL	3/week	Grab
Total Recoverable Aluminum	109 µg/L[8]	---	Report µg/L	2/month	Composite
Total Recoverable Copper	6.2 µg/L	---	8.2 µg/L	2/month	Composite
Total Recoverable Lead	1.1 µg/L	---	----	2/month	Composite
Total Recoverable Zinc	77 µg/L	---	77 µg/L	2/month	Composite
Dissolved Oxygen	≥ 7.0 mg/L as a daily minimum			1/day	Grab
Ammonia Nitrogen as N (June 1 - October 31)	2.1 mg/L 105 lb/day	---	3.1 mg/L 155 lb/day	2/week	Composite
Ammonia Nitrogen as N (November 1 - May 31)	9.9 mg/L 496 lb/day	---	Report mg/L Report lb/day	2/week	Composite

Effluent Characteristic	Effluent Limitation			Monitoring Requirements[1,2,3]	
	Average Monthly	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample Type[4]**
Total Kjeldahl Nitrogen[9]	Report mg/L	---	Report mg/L	1/week	Composite
Total Nitrate + Nitrite[9]	Report mg/L	---	Report mg/L	1/week	Composite
Rolling Average Total Nitrogen[9,10]	501 lb/day	---	---	1/week	Composite
Total Nitrogen[9,10]	Report mg/L Report lb/day	---	Report mg/L Report lb/day	1/week	Composite
Total Phosphorus (April 1 – October 31)	0.18 mg/L	---	Report mg/L	1/week	Composite
Total Phosphorus (November 1 – March 31)	1.0 mg/L	---	Report mg/L	1/week	Composite
Whole Effluent Toxicity (WET) Testing[11,12]					
LC_{50}	---	---	≥ 100 %	1/year	Composite
C-NOEC	---	---	≥ 50 %	1/year	Composite
Hardness	---	---	Report mg/L	1/year	Composite
Ammonia Nitrogen	---	---	Report mg/L	1/year	Composite
Total Aluminum	---	---	Report mg/L	1/year	Composite
Total Cadmium	---	---	Report mg/L	1/year	Composite
Total Copper	---	---	Report mg/L	1/year	Composite
Total Nickel	---	---	Report mg/L	1/year	Composite
Total Lead	---	---	Report mg/L	1/year	Composite
Total Zinc	---	---	Report mg/L	1/year	Composite
Total Organic Carbon	---	---	Report mg/L	1/year	Composite

Ambient Characteristic[14]	Reporting Requirements			Monitoring Requirements[1,2,3]	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type[4]
Hardness	---	---	Report mg/L	1/year	Grab
Ammonia Nitrogen	---	---	Report mg/L	1/year	Grab
Total Aluminum	---	---	Report mg/L	1/year	Grab
Total Cadmium	---	---	Report mg/L	1/year	Grab
Total Copper	---	---	Report mg/L	1/year	Grab
Total Nickel	---	---	Report mg/L	1/year	Grab
Total Lead	---	---	Report mg/L	1/year	Grab
Total Zinc	---	---	Report mg/L	1/year	Grab
Total Organic Carbon	---	---	Report mg/L	1/year	Grab
Dissolved Organic Carbon[13]	---	---	Report mg/L	1/year	Grab
pH[15]	---	---	Report S.U.	1/year	Grab
Temperature[15]	---	---	Report °C	1/year	Grab
Total Phosphorus[16] (April 1 - October 31)	---	---	Report mg/L	1/month	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

Footnotes:

1. Effluent samples shall be taken at a location that yields data representative of the discharge. 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. The Permittee shall report the results to the Environmental Protection Agency Region 1 (EPA) and the State of any additional testing above that required herein, if testing is in accordance with 40 C.F.R. § 136.

2. In accordance with 40 C.F.R. § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 C.F.R. Part 136 or required under 40 C.F.R. 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 C.F.R. Part 136 or required under 40 C.F.R. Chapter I, Subchapter N or O for the measured pollutant or pollutant parameter. 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), whichever is higher. Minimum levels may be obtained in several 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. Report annual average, monthly average, and the maximum daily flow in million gallons per day (MGD). The limit is an annual average, which shall be reported as a rolling average. The value 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.). See Part I.G.1 below for a provision to modify the pH range.

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

8. See Part I.G.2 for special condition related to aluminum compliance schedule.

9. Total Kjeldahl nitrogen, nitrite nitrogen, and nitrate nitrogen 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] * 8.345

10. The total nitrogen limit is an annual average mass-based limit (lb/day), which shall be reported as a rolling 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 of the previous eleven months.

    Report both the rolling annual average and the monthly average each month.

    See Part I.G.3 for special conditions related to nitrogen.

11. The Permittee shall conduct acute toxicity tests (LC50) and chronic toxicity tests (C-NOEC) in accordance with test procedures and protocols specified in **Attachment A and B** of this permit. LC50 and C-NOEC are defined in Part II.E. of this permit. The Permittee shall test the daphnid, *Ceriodaphnia dubia*, and the fathead minnow, *Pimephales promelas*. Toxicity test samples shall be collected and tests completed during the same week each time of calendar quarter ending September 30th. 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.

12. For Part I.A.1., Whole Effluent Toxicity Testing, the Permittee shall conduct the analyses specified in **Attachment A and B**, 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 and B**, Section IV., DILUTION WATER. Minimum levels and test methods are specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS.

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

14. For Part I.A.1., Ambient Characteristics, the Permittee shall conduct the analyses specified in **Attachment A and B**, 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 and B**. Minimum levels and test methods are specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS.

15. A pH and temperature measurement shall be taken of each receiving water sample at the time of collection for WET testing 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.

16. See Part I.G.4 for special conditions related to ambient phosphorus monitoring.

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 substances in kind or quantity that settle to form harmful benthic deposits; float as foam, debris, scum or other visible substances; produce odor, color, taste or turbidity that is not naturally occurring and would render the surface water unsuitable for its designated uses; result in the dominance of nuisance species; or interfere with recreational activities.

4. Tainting substances shall not be present in the discharge in concentrations that individually or in combination are detectable by taste and odor tests performed on the edible portions of aquatic organisms.

5. The discharge shall not result in toxic substances or chemical constituents in concentrations or combinations in the receiving water that injure or are inimical to plants, animals, humans or aquatic life; or persist in the environment or accumulate in aquatic organisms to levels that result in harmful concentrations in edible portions of fish, shellfish, other aquatic life, or wildlife that might consume aquatic life.

6. The discharge shall not result in benthic deposits that have a detrimental impact on the benthic community. The discharge shall not result in oil and grease, color, slicks, odors, or surface floating solids that would impair any existing or designated uses in the receiving water.

7. The discharge shall not result in an exceedance of the naturally occurring turbidity in the receiving water by more than 10 NTUs.

8. The Permittee must provide adequate notice to EPA-Region 1 and the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) of the following:

   a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to § 301 or § 306 of the Clean Water Act if it were directly discharging those pollutants or in a primary industry category (see 40 C.F.R. §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.

B. UNAUTHORIZED DISCHARGES

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 and shall be reported in accordance with Part D.1.e.(1) of the Standard Conditions of this permit (24-hour reporting).

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance (O&M) of the sewer system shall be in compliance with the Standard Conditions of Part II and the following terms and conditions. Each Permittee is required to complete the following activities for the collection system which it owns:

1. Maintenance Staff

   The Permittee and co-Permittees shall each 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 Collection System O&M Plan required pursuant to Section C.5. below.

2. Preventive Maintenance Program

   The Permittee and co-Permittees shall each 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 Collection System O&M Plan required pursuant to Section C.5. below.

3. Infiltration/Inflow

   The Permittee and co-Permittees shall each 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 Collection System O&M Plan required pursuant to Section C.5. below.

4. Collection System Mapping

   Within 30 months of the effective date of this permit, the Permittee and co-Permittees shall each prepare a map of the sewer collection system it owns (see page 1 of this permit for the effective date). The map shall be on a street map of the community, with sufficient detail and at a scale to allow easy interpretation. The collection system information shown on the map shall be based on current conditions and shall be kept up-to-date and available for review by federal, state, or local agencies. Such map(s) shall include, but not be limited to the following:

   a. All sanitary sewer lines and related manholes;

   b. All combined sewer lines, related manholes, and catch basins;

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

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

   e. All pump stations and force mains;

   f. The wastewater treatment facility(ies);

   g. All surface waters (labeled);

   h. Other major appurtenances such as inverted siphons and air release valves;

   i. A numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;

   j. The scale and a north arrow; and

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

5. Collection System O&M Plan

   The Permittee and co-Permittees shall each develop and implement a Collection System O&M Plan.

   a. Within six (6) months of the effective date of the permit, the Permittee and co-Permittees shall each submit to EPA and the State:

      (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; and
(3) A schedule for the development and implementation of the full Collection System O&M Plan including the elements in paragraphs b.1. through b.7 below.

b. The full Collection System O&M Plan shall be completed, implemented and submitted to EPA and the State within twenty-four (24) months from the effective date of this permit. The Plan shall include:

(1) The required submittal from paragraph 5.a. above, updated to reflect current information;
(2) A preventive maintenance and monitoring program for the collection system;
(3) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;
(4) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;
(5) 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;
(6) A description of the Permittee's and each co-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; and
(7) An educational public outreach program for all aspects of I/I control, particularly private inflow.
(8) An Overflow Emergency Response Plan to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the permit.

6. Annual Reporting Requirement

Prior to the implementation of the Collection System O&M Plan, the Permittee and co-Permittees shall each submit a summary report of all actions taken to minimize I/I during the previous calendar year to EPA and the NHDES by February 28th of each year.

Once the Collection System O&M Plan is implemented, the Permittee and co-Permittees shall each submit a summary report of activities related to the implementation of its Collection System O&M Plan during the previous calendar year. The report shall be submitted to EPA and the State annually by March 31st. The first annual report is due the first March 31st following submittal of the collection system O&M Plan required by Part I.C.5.b. of this permit. 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; and

f. If the monthly average annual flow exceeded 80 percent of the facility's 6.0 MGD design flow (4.8 MGD) for three consecutive months in the previous calendar year, 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.

D. ALTERNATE POWER SOURCE

In order to maintain compliance with the terms and conditions of this permit, the Permittee and co-Permittees shall each 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 AND PRETREATMENT PROGRAM

1. The Permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW Treatment Plant's Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. Within 90 days of the effective date of this permit, the Permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. As part of this evaluation, the Permittee shall assess how the POTW performs with respect to influent and effluent of pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the Permittee shall complete and submit the attached form (see **Attachment C –** Reassessment of Technically Based Industrial Discharge Limits) with the technical evaluation to assist in determining whether existing local limits

need to be revised. Justifications and conclusions should be based on actual plant data if available and should be included in the report. Should the evaluation reveal the need to revise local limits, the Permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval. The Permittee shall carry out the local limits revisions in accordance with EPA's Local Limit Development Guidance (July 2004).

2. The Permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the Permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 C.F.R. § 403. At a minimum, the Permittee must perform the following duties to properly implement the Industrial Pretreatment Program (IPP):

    a. Carry out inspection, surveillance, and monitoring procedures which will determine independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and adequate records shall be maintained.

    b. Issue or renew all necessary industrial user control mechanisms within 90 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.

    c. Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement.

    d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.

3. The Permittee shall provide the EPA and NHDES with an annual report describing the Permittee's pretreatment program activities for the twelve (12) month period ending 60 days prior to the due date in accordance with 403.12(i). The annual report shall be consistent with the format described in **Attachment D** (NPDES Permit Requirement for Industrial Pretreatment Annual Report) of this permit and shall be submitted no later than **December 1** of each year.

4. The Permittee must obtain approval from EPA prior to making any significant changes to the IPP in accordance with 40 C.F.R. 403.18(c).

5. The Permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 C.F.R. § 405 et seq.

6. The Permittee must modify its pretreatment program, if necessary, to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the IPP. The Permittee must provide to EPA, in writing, within 180 days of this permit's effective date proposed changes, if applicable, to the Permittee's pretreatment program deemed necessary to

assure conformity with current Federal Regulations. At a minimum, the Permittee must address in its written submission the following areas: (1) Enforcement response plan; (2) revised sewer use ordinances; and (3) slug control evaluations. The Permittee shall implement these proposed changes pending EPA Region I's approval under 40 C.F.R. § 403.18. This submission is separate and distinct from any local limits analysis submission described in Part I.E.1.

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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 503 do not apply to facilities which dispose of sludge in a municipal solid waste landfill. 40 C.F.R. § 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 C.F.R. § 503.6.

5. The 40 C.F.R. § 503 requirements include the following elements:

   - General requirements
   - Pollutant limitations
   - Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
   - Management practices
   - Record keeping
   - Monitoring
   - Reporting

Which of the 40 C.F.R. § 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.[1]

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 C.F.R. § 503.8.

7. Under 40 C.F.R. § 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 C.F.R. § 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 § 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 C.F.R. § 503.9(r), for use or disposal, then the Permittee remains responsible to ensure that the applicable requirements in § 503 are met. 40 C.F.R. § 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 C.F.R. § 503 Subpart B.

8. The Permittee shall submit an annual report containing the information specified in the 40 C.F.R. § 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).

9. Compliance with the requirements of this permit or 40 C.F.R. § 503 shall not eliminate or modify the need to comply with applicable requirements under RSA 485-A and Env-Wq 800, New Hampshire Sludge Management Rules.

[1] This guidance document is available upon request from EPA Region 1 and may also be found at: http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf

G. SPECIAL CONDITIONS

1. pH

The pH range may be modified if the Permittee satisfies conditions set forth in Part I.I.5 below. Upon notification of an approval by NHDES, EPA will review and, if acceptable, will submit written notice to the Permittee of the permit change. The modified pH range will not be in effect until the Permittee receives written notice from EPA.

2. Aluminum

The new effluent limit for total aluminum shall be subject to a schedule of compliance whereby the limit takes effect three years after the effective date of the permit.[2] For the period starting on the effective date of this permit and ending three (3) years after the effective date, the Permittee shall report the monthly average and daily maximum aluminum concentration on the monthly DMR. After this initial three (3) year period, the Permittee shall comply with the monthly average total aluminum limit of 109 µg/L ("final aluminum effluent limit"). The Permittee shall submit an annual report due by January 15th of each of the first three (3) years of the permit that will detail its progress towards meeting the final aluminum effluent limit.

At a minimum, the Permittee shall include the following in the annual report:

a. An evaluation of all other potentially significant sources of aluminum in the sewer system and alternatives for minimizing these sources.

b. An evaluation of alternative modes of operation at the wastewater treatment facility in order to reduce the effluent levels of aluminum

If during the three-year period after the effective date of the permit, New Hampshire adopts revised aluminum criteria, but EPA has not yet approved such criteria, then the Permittee may request a permit modification, pursuant to 40 C.F.R. § 122.62(a)(3), for a further delay in the effective date of the final aluminum effluent limit. If new criteria are approved by EPA before the effective date of the final aluminum effluent limit, the Permittee may apply for a permit modification, pursuant to 40 C.F.R. § 122.62(a)(3), to revise the time to meet the final aluminum effluent limit and/or for revisions to the permit based on whether there is reasonable potential for the facility's aluminum discharge to cause or contribute to a violation of the newly approved aluminum criteria.

2 The final effluent limit of 109 µg/l for aluminum may be modified prior to the end of the three-year compliance schedule if warranted by the new criteria and a reasonable potential analysis, and if consistent with anti-degradation requirements. Such a modification would not trigger anti-backsliding prohibitions, as reflected in CWA § 402(o) and 40 C.F.R. § 122.44(l), provided that such modification is finalized before the final limit takes effect.

3. Nitrogen

   a. Within **one year of the effective date of the permit**, the Permittee shall complete an evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen in order to minimize the annual average mass discharge of total nitrogen and submit a report to EPA and NHDES documenting this evaluation and presenting a description of recommended operational changes. The Permittee shall implement the recommended operational changes in order to minimize the discharge loading of nitrogen. The methods to be evaluated shall include, but are 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 report may be combined with the Permittees' annual nitrogen report under Part I.G.3.b, if both reports are submitted to EPA and NHDES by February 1st.

   b. The Permittee shall also submit an annual report to EPA and the NHDES, by February 1st 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 year and the previous five 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 also include all supporting data.

4. Phosphorus

   The Permittee shall develop and implement a sampling and analysis plan for the once every two year collection of monthly samples in the receiving water for total phosphorus at a location upstream of the facility's discharge. Samples shall be collected once per month, from April through October, every other calendar year starting on the calendar year following the date of permit issuance. Sampling shall be conducted on any calendar day that is preceded by at least 72 hours with less than or equal to 0.1 inches of cumulative rainfall. A sampling plan shall be submitted to EPA and the State at least three months prior to the first planned sampling date as part of a Quality Assurance Project Plan for review. For the years that monitoring is not required, the Permittee shall report NODI code "9" (conditional monitoring not required).

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 no later than the 15th day of the month electronically using NetDMR. 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. This includes the NHDES Monthly Operating Reports (MORs). *See* Part I.H.7. 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 particular report due date specified in this permit.

3. Submittal of Industrial User and Pretreatment Related Reports

   a. Prior to December 21, 2025, all reports and information required of the Permittee in the Industrial Users and Pretreatment Program section of this permit shall be submitted to the Pretreatment Coordinator in Region 1 EPA's Water Division. Starting on 21 December 2025 these submittals must be done electronically as NetDMR attachments and/or using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at https://cdx.epa.gov/. These requests, reports and notices include:

      (1) Annual Pretreatment Reports,
      (2) Pretreatment Reports Reassessment of Technically Based Industrial Discharge Limits Form,
      (3) Revisions to Industrial Discharge Limits,
      (4) Report describing Pretreatment Program activities, and
      (5) Proposed changes to a Pretreatment Program

b. This information shall be submitted to EPA WD as a hard copy at the following address:

U.S. Environmental Protection Agency
Water Division
Regional Pretreatment Coordinator
5 Post Office Square - Suite 100 (06-03)
Boston, MA 02109-3912

4. 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/.

5. 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 the EPA 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.

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

6. Submittal of Reports to EPA Enforcement and Compliance Assurance Division (ECAD) in Hard Copy Form

   a. The following notifications and reports shall be signed and dated originals, submitted as hard copy, with a cover letter describing the submission:

      (1) Prior to December 21, 2025, written notifications required under Part II.B.4.c, for bypasses, and Part II.D.1.e, for sanitary sewer overflows (SSOs). Starting on 21 December 2025 such notifications must be done electronically using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at https://cdx.epa.gov/.
      (2) Collection System Operation and Maintenance Plan (from co-Permittees)
      (3) Report on annual activities related to O&M Plan (from co-Permittees)

   b. This information shall be submitted to EPA ECAD at the following address:

U.S. Environmental Protection Agency
Enforcement and Compliance Assurance Division
Water Compliance Section
5 Post Office Square, Suite 100 (04-SMR)
Boston, MA 02109-3912

7. State Reporting

   Unless otherwise specified in this permit or by the State, duplicate signed copies of all reports, information, requests or notifications described in this permit, including the reports, information, requests or notifications described in Parts I.H.3 through I.H.6 shall also be submitted to the New Hampshire Department of Environmental Services, Water Division (NHDES–WD) electronically to the Permittee's assigned NPDES inspector or as hardcopy to the following address:

New Hampshire Department of Environmental Services
Water Division
Wastewater Engineering Bureau
29 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03302-0095

8. Verbal Reports and Verbal Notifications

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

EPA ECAD at 617-918-1510
and
NHDES Assigned NPDES Inspector at 603-271-1494

I. STATE PERMIT CONDITIONS

1. The Permittee shall not at any time, either alone or in conjunction with any person or persons, cause directly or indirectly the discharge of waste into the said receiving water unless it has been treated in such a manner as will not lower the legislated water quality classification or interfere with the uses assigned to said water by the New Hampshire Legislature (RSA 485-A:12).

2. This NPDES discharge permit is issued by EPA under federal and state law. Upon final issuance by EPA, the New Hampshire Department of Environmental Services-Water Division (NHDES-WD) may adopt this permit, including all terms and conditions, as a state permit pursuant to RSA 485-A:13.

3. EPA shall have the right to enforce the terms and conditions of this permit pursuant to federal law and NHDES-WD shall have the right to enforce the permit pursuant to state law, if the permit is adopted. Any modification, suspension, or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of the permit as issued by the other agency.

4. Pursuant to New Hampshire Statute RSA 485-A13,I(c), any person responsible for a bypass or upset at a *wastewater facility* shall give immediate notice of a bypass or upset to all public or privately owned water systems drawing water from the same receiving water and located within 20 miles downstream of the point of discharge regardless of whether or not it is on the same receiving water or on another surface water to which the receiving water is tributary. Wastewater facility is defined at RSA 485-A:2XIX as the structures, equipment, and processes required to collect, convey, and treat domestic and industrial wastes, and dispose of the effluent and sludge. The Permittee shall maintain a list of persons, and their telephone numbers, who are to be notified immediately by telephone. In addition, written notification, which shall be postmarked within 3 days of the bypass or upset, shall be sent to such persons.

5. The pH range of 6.5 to 8.0 Standard Units (S.U.) must be achieved in the final effluent unless the Permittee can demonstrate to NHDES-WD: (1) that the range should be widened due to naturally occurring conditions in the receiving water or (2) that the naturally occurring receiving water pH is not significantly altered by the Permittee's discharge. The scope of any demonstration project must receive prior approval from NHDES-WD. In no case, shall the above procedure result in pH limits outside the range of 6.0 – 9.0 S.U., which is the federal effluent limitation guideline regulation for pH for secondary treatment and is found in 40 C.F.R. § 133.102(c).

6. Pursuant to New Hampshire Code of Administrative Rules, Env-Wq 703.07(a):

   a. Any person proposing to construct or modify any of the following shall submit an application for a sewer connection permit to the department:

      (1) Any extension of a collector or interceptor, whether public or private, regardless of flow;
      (2) Any wastewater connection or other discharge in excess of 5,000 gpd;
      (3) Any wastewater connection or other discharge to a WWTP operating in excess of 80 percent design flow capacity or design loading capacity based on actual average flow or loading for 3 consecutive months;
      (4) Any industrial wastewater connection or change in existing discharge of industrial wastewater, regardless of quality or quantity; and
      (5) Any sewage pumping station greater than 50 gpm or serving more than one building.
      (6) Any proposed sewer that serves more than one building or that requires a manhole at the connection.

7. For each new or increased discharge of industrial waste to the POTW, the Permittee shall submit, in accordance with Env-Wq 305.10(a) an "Industrial Wastewater Discharge Request."

8. Pursuant to Env-Wq 305.21, at a frequency no less than every five years, the Permittee shall submit to NHDES:

   a. A copy of its current sewer use ordinance if it has been revised without department approval subsequent to any previous submittal to the department or a certification that no changes have been made.

   b. A current list of all significant indirect dischargers to the POTW. At a minimum, the list shall include for each significant indirect discharger, its name and address, the name and daytime telephone number of a contact person, products manufactured, industrial processes used, existing pretreatment processes, and discharge permit status.

   c. A list of all permitted indirect dischargers; and

   d. A certification that the municipality is strictly enforcing its sewer use ordinance and all discharge permits it has issued.

9. When the effluent discharged for a period of three (3) consecutive months exceeds 80 percent of the 6.0 MGD design flow (4.8 MGD) or design loading capacity, the Permittee shall submit to the permitting authorities a projection of flows and loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans. Before the design flow will be reached, or whenever treatment necessary to achieve permit limits cannot be assured, the Permittee may be required to submit plans for facility improvements.

10. In accordance with Env-Wq 305.15(d), the Permittee shall not allocate or accept for treatment more than 90 percent of the headworks loading limits of its POTW.

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°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
Water Division
U.S. Environmental Protection Agency-New
England 5 Post Office Sq., Suite 100 (06-5)
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 (^oC)	20 $\pm$ 1^{o}C or 25 $\pm$ 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	$\geq$ 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 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

FRESHWATER CHRONIC TOXICITY TEST PROCEDURE AND PROTOCOL

USEPA Region 1

I. GENERAL REQUIREMENTS

The permittee shall be responsible for the conduct of acceptable chronic toxicity tests using three fresh samples collected during each test period. The following tests shall be performed as prescribed in Part 1 of the NPDES discharge permit in accordance with the appropriate test protocols described below. (Note: the permittee and testing laboratory should review the applicable permit to determine whether testing of one or both species is required).

- **Daphnid (Ceriodaphnia dubia) Survival and Reproduction Test.**

- **Fathead Minnow (Pimephales promelas) Larval Growth and Survival Test.**

Chronic toxicity data shall be reported as outlined in Section VIII.

II. METHODS

Methods to follow are those recommended by EPA in: Short Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition. October 2002. United States Environmental Protection Agency. Office of Water, Washington, D.C., EPA 821-R-02-013. The methods are available on-line at http://www.epa.gov/waterscience/WET/ . Exceptions and clarification are stated herein.

III. SAMPLE COLLECTION AND USE

A total of three fresh samples of effluent and receiving water are required for initiation and subsequent renewals of a freshwater, chronic, toxicity test. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. Fresh samples are recommended for use on test days 1, 3, and 5. However, provided a total of three samples are used for testing over the test period, an alternate sampling schedule is acceptable. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any hold time extension. All test samples collected may be used for 24, 48 and 72 hour renewals after initial use. All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6^{o} C.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol.

Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate prior to sample use for toxicity testing.

If any of the renewal samples are of sufficient potency to cause lethality to 50 percent or more of the test organisms in any of the test treatments for either species or, if the test fails to meet its permit limits, then chemical analysis for total metals (originally required for the initial sample only in Section VI) will be required on the renewal sample(s) as well.

IV. DILUTION WATER

Samples of receiving water must be collected from a location in the receiving water body 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. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2,Test Results & Permit Limits.

The test dilution water must be used to determine whether the test met the applicable TAC. When receiving water is used for test dilution, an additional control made up of standard laboratory water (0% effluent) is required. This control will be used to verify the health of the test organisms and evaluate to what extent, if any, the receiving water itself is responsible for any toxic response observed.

If dechlorination of a sample by the toxicity testing laboratory is necessary a "sodium thiosulfate" control, representing the concentration of sodium thiosulfate used to adequately dechlorinate the sample prior to toxicity testing, must be included in the test.

If the use of an alternate dilution water (ADW) is authorized, in addition to the ADW test control, the testing laboratory must, for the purpose of monitoring the receiving water, also run a receiving water control.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable an ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first is the case where repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use be made by the permittee and toxicity testing laboratory. The second is in the case where two of the most recent documented incidents of unacceptable site dilution water toxicity requires ADW use in future WET testing.

For the second case, written notification from the permittee requesting ADW use **and** written authorization from the permit issuing agency(s) is required **prior to** switching to a long-term use of ADW for the duration of the permit.

Written requests for use of ADW must be mailed with supporting documentation to the following addresses:

Director
Water Division
U.S. Environmental Protection Agency, Region 1
Five Post Office Square, Suite 100
Mail Code 06-5
Boston, MA 02109-3912

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
Five Post Office Square, Suite 100
Mail Code 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/enforcementandassistance/dmr.html for further important details on alternate dilution water substitution requests.

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

Method specific test conditions and TAC are to be followed and adhered to as specified in the method guidance document, EPA 821-R-02-013. If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.

V.1. Use of Reference Toxicity Testing

Reference toxicity test results and applicable control charts must be included in the toxicity testing report.

If reference toxicity test results fall outside the control limits established by the laboratory for a specific test endpoint, a reason or reasons for this excursion must be evaluated, correction made and reference toxicity tests rerun as necessary.

If a test endpoint value exceeds the control limits at a frequency of more than one out of twenty then causes for the reference toxicity test failure must be examined and if problems are identified corrective action taken. The reference toxicity test must be repeated during the same month in which the exceedance occurred.

If two consecutive reference toxicity tests fall outside control limits, the possible cause(s) for the exceedance must be examined, corrective actions taken and a repeat of the reference toxicity test must take place immediately. Actions taken to resolve the problem must be reported.

V.1.a. Use of Concurrent Reference Toxicity Testing

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall slightly outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall well outside the established **upper** control limits i.e. $\geq$3 standard deviations for IC25 values and $\geq$ two concentration intervals for NOECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

V.2. For the *C. dubia* test, the determination of TAC and formal statistical analyses must be performed using only the first three broods produced.

V.3. Test treatments must include 5 effluent concentrations and a dilution water control. An additional test treatment, at the permitted effluent concentration (% effluent), is required if it is not included in the dilution series.

VI. CHEMICAL ANALYSIS

As part of each toxicity test's daily renewal procedure, pH, specific conductance, dissolved oxygen (DO) and temperature must be measured at the beginning and end of each 24-hour period in each test treatment and the control(s).

The additional analysis that must be performed under this protocol is as specified and noted in the table below.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1, 4]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3, 4]	x		0.02
Alkalinity[4]	x	x	2.0
pH[4]	x	x	--
Specific Conductance[4]	x	x	--
Total Solids[6]	x		--
Total Dissolved Solids[6]	x		--
Ammonia[4]	x	x	0.1
Total Organic Carbon[6]	x	x	0.5
Total Metals[5]			
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
- USEPA 1983. Manual of Methods Analysis of Water and Wastes
  - -Method 330.5

3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing
4. Analysis is to be performed on samples and/or receiving water, as designated in the table above, from all three sampling events.
5. Analysis is to be performed on the initial sample(s) only unless the situation arises as stated in Section III, paragraph 4
6. Analysis to be performed on initial samples only

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

A concentration/response relationship evaluation is required for test endpoint determinations from both Hypothesis Testing and Point Estimate techniques. The test report is to include documentation of this evaluation in support of the endpoint values reported. The dose-response review must be performed as required in Section 10.2.6 of EPA-821-R-02-013. Guidance for this review can be found at http://water.epa.gov/scitech/methods/cwa/ . In most cases, the review will result in one of the following three conclusions: (1) Results are reliable and reportable; (2) Results are anomalous and require explanation; or (3) Results are inconclusive and a retest with fresh samples is required.

2. Test Variability (Test Sensitivity)

This review step is separate from the determination of whether a test meets or does not meet TAC. Within test variability is to be examined for the purpose of evaluating test sensitivity. This evaluation is to be performed for the sub-lethal hypothesis testing endpoints reproduction and growth as required by the permit. The test report is to include documentation of this evaluation to support that the endpoint values reported resulted from a toxicity test of adequate sensitivity. This evaluation must be performed as required in Section 10.2.8 of EPA-821-R-02-013.

To determine the adequacy of test sensitivity, USEPA requires the calculation of test percent minimum significant difference (PMSD) values. In cases where NOEC determinations are made based on a non-parametric technique, calculation of a test PMSD value**,** for the sole purpose of assessing test sensitivity, shall be calculated using a comparable parametric statistical analysis technique. The calculated test PMSD is then compared to the upper and lower PMSD bounds shown for freshwater tests in Section 10.2.8.3, p. 52, Table 6 of EPA-821-R-02-013. The comparison will yield one of the following determinations.

- The test PMSD exceeds the PMSD upper bound test variability criterion in Table 6, the test results are considered highly variable and the test may not be sensitive enough to determine the presence of toxicity at the permit limit concentration (PLC). If the test results indicate that the discharge is not toxic at the PLC, then the test is considered insufficiently sensitive and must be repeated within 30 days of the initial test completion using fresh samples. If the test results indicate that the discharge is toxic at the PLC, the test is considered acceptable and does not have to be repeated.

- The test PMSD falls below the PMSD lower bound test variability criterion in Table 6, the test is determined to be very sensitive. In order to determine which treatment(s) are statistically significant and which are not, for the purpose of reporting a NOEC, the relative percent difference (RPD) between the control and each treatment must be calculated and compared to the lower PMSD boundary. See *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program,* EPA 833-R-00-003, June 2002, Section 6.4.2. The following link: Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program can be used to locate the USEPA website containing this document. If the RPD for a treatment falls below the PMSD lower bound, the difference is considered statistically insignificant. If the RPD for a treatment is greater that the PMSD lower bound, then the treatment is considered statistically significant.

- The test PMSD falls within the PMSD upper and lower bounds in Table 6, the sub-lethal test endpoint values shall be reported as is.

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

Refer to general data analysis flowchart, EPA 821-R-02-013, page 43

For discussion on Hypothesis Testing, refer to EPA 821-R-02-013, Section 9.6

For discussion on Point Estimation Techniques, refer to EPA 821-R-02-013, Section 9.7

2. *Pimephales promelas*

Refer to survival hypothesis testing analysis flowchart, EPA 821-R-02-013, page 79

Refer to survival point estimate techniques flowchart, EPA 821-R-02-013, page 80

Refer to growth data statistical analysis flowchart, EPA 821-R-02-013, page 92

3. *Ceriodaphnia dubia*

Refer to survival data testing flowchart, EPA 821-R-02-013, page 168

Refer to reproduction data testing flowchart, EPA 821-R-02-013, page 173

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

- Test summary sheets (2007 DMR Attachment F) which includes:
  - Facility name
  - NPDES permit number
  - Outfall number
  - Sample type
  - Sampling method
  - Effluent TRC concentration
  - Dilution water used
  - Receiving water name and sampling location
  - Test type and species
  - Test start date
  - Effluent concentrations tested (%) and permit limit concentration
  - Applicable reference toxicity test date and whether acceptable or not
  - Age, age range and source of test organisms used for testing
  - Results of TAC review for all applicable controls
  - Test sensitivity evaluation results (test PMSD for growth and reproduction)
  - Permit limit and toxicity test results
  - Summary of test sensitivity and concentration response evaluation

In addition to the summary sheets the report must include:

- A brief description of sample collection procedures
- Chain of custody documentation including names of individuals collecting samples, times and dates of sample collection, sample locations, requested analysis and lab receipt with time and date received, lab receipt personnel and condition of samples upon receipt at the lab(s)
- Reference toxicity test control charts
- All sample chemical/physical data generated, including minimum limits (MLs) and analytical methods used
- All toxicity test raw data including daily ambient test conditions, toxicity test chemistry, sample dechlorination details as necessary, bench sheets and statistical analysis
- A discussion of any deviations from test conditions
- Any further discussion of reported test results, statistical analysis and concentration-response relationship and test sensitivity review per species per endpoint

EPA - New England

Reassessment of Technically Based Industrial Discharge Limits

Under 40 CFR §122.21(j)(4), all Publicly Owned Treatment Works (POTWs) with approved Industrial Pretreatment Programs (IPPs) shall provide the following information to the Director: a written evaluation of the need to revise local industrial discharge limits under 40 CFR §403.5(c)(1).

Below is a form designed by the U.S. Environmental Protection Agency (EPA - New England) to assist POTWs with approved IPPs in evaluating whether their existing Technically Based Local Limits (TBLLs) need to be recalculated. The form allows the permittee and EPA to evaluate and compare pertinent information used in previous TBLLs calculations against present conditions at the POTW.

Please read direction below before filling out form.

ITEM I.

* In Column (1), list what your POTW's influent flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present influent flow rate. Your current flow rate should be calculated using the POTW's average daily flow rate from the previous 12 months.

* In Column (1) list what your POTW's SIU flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present SIU flow rate.

* In Column (1), list what dilution ratio and/or 7Q10 value was used in your old/expired NPDES permit. In Column (2), list what dilution ration and/or 7Q10 value is presently being used in your new/reissued NPDES permit.

  The 7Q10 value is the lowest seven day average flow rate, in the river, over a ten year period. The 7Q10 value and/or dilution ratio used by EPA in your new NPDES permit can be found in your NPDES permit "Fact Sheet."

* In Column (1), list the safety factor, if any, that was used when your existing TBLLs were calculated.

* In Column (1), note how your bio-solids were managed when your existing TBLLs were calculated. In Column (2), note how your POTW is presently disposing of its biosolids and how your POTW will be disposing of its biosolids in the future.

ITEM II.

* List what your existing TBLLs are - as they appear in your current Sewer Use Ordinance (SUO).

ITEM III.

* Identify how your existing TBLLs are allocated out to your industrial community. Some pollutants may be allocated differently than others, if so please explain.

ITEM IV.

* Since your existing TBLLs were calculated, identify the following in detail:

  (1) if your POTW has experienced any upsets, inhibition, interference or pass-through as a result of an industrial discharge.

  (2) if your POTW is presently violating any of its current NPDES permit limitations - include toxicity.

ITEM V.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in pounds per day) received in the POTW's influent. Current sampling data is defined as data obtained over the last 24 month period.

  All influent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* Based on your existing TBLLs, as presented in Item II., list in Column (2), for each pollutant the Maximum Allowable Headwork Loading (MAHL) values derived from an applicable environmental criteria or standard, e.g. water quality, sludge, NPDES, inhibition, etc. For more information, please see EPA's Local Limit Guidance Document (July 2004).

Item VI.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in micrograms per liter) present your POTW's effluent. Current sampling data is defined as data obtained during the last 24 month period.

(Item VI. continued)

All effluent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* List in Column (2A) what the Water Quality Standards (WQS) were (in micrograms per liter) when your TBLLs were calculated, please note what hardness value was used at that time. Hardness should be expressed in milligram per liter of Calcium Carbonate.

  List in Column (2B) the current WQSs or "Chronic Gold Book" values for each pollutant multiplied by the dilution ratio used in your new/reissued NPDES permit. For example, with a dilution ratio of 25:1 at a hardness of 25 mg/l - Calcium Carbonate (copper's chronic WQS equals 6.54 ug/l) the chronic NPDES permit limit for copper would equal 156.25 ug/l.

ITEM VII.

* In Column (1), list all pollutants (in micrograms per liter) limited in your new/reissued NPDES permit. In Column (2), list all pollutants limited in your old/expired NPDES permit.

ITEM VIII.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants in your POTW's biosolids. Current data is defined as data obtained during the last 24 month period. Results are to be expressed as total dry weight.

  All biosolids data collected and analyzed must be in accordance with 40 CFR §136.

  In Column (2A), list current State and/or Federal sludge standards that your facility's biosolids must comply with. Also note how your POTW currently manages the disposal of its biosolids. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria will be and method of disposal.

In general, please be sure the units reported are correct and all pertinent information is included in your evaluation. If you have any questions, please contact your pretreatment representative at EPA - New England.

REASSESSMENT OF TECHNICALLY BASED LOCAL LIMITS (TBLLs)

POTW Name & Address : ______________________________

NPDES PERMIT # : ______________________

Date EPA approved current TBLLs : ______________________

Date EPA approved current Sewer Use Ordinance : ______________________

ITEM I.

In Column (1) list the conditions that existed when your current TBLLs were calculated. In Column (2), list current conditions or expected conditions at your POTW.		
	Column (1) EXISTING TBLLs	Column (2) PRESENT CONDITIONS
POTW Flow (MGD)		
Dilution Ratio or 7Q10 (from NPDES Permit)		
SIU Flow (MGD)		
Safety Factor		N/A
Biosolids Disposal Method(s)		

ITEM II.

EXISTING TBLLs			
POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)	POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)

ITEM III.

Note how your existing TBLLs, listed in Item II., are allocated to your Significant Industrial Users (SIUs), i.e. uniform concentration, contributory flow, mass proportioning, other. Please specify by circling.

ITEM IV.

Has your POTW experienced any upsets, inhibition, interference or pass-through from industrial sources since your existing TBLLs were calculated?
If yes, explain.

____

____

Has your POTW violated any of its NPDES permit limits and/or toxicity test requirements?

If yes, explain.

____

____

ITEM V.

Using current POTW influent sampling data fill in Column (1). In Column (2), list your Maximum Allowable Headwork Loading (MAHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAHL value was established, i.e. water quality, sludge, NPDES etc.

Pollutant	Column (1) Influent Data Analyses Maximum (lb/day)	Average (lb/day)	Column (2) MAHL Values (lb/day)	Criteria
Arsenic				
Cadmium				
Chromium				
Copper				
Cyanide				
Lead				
Mercury				
Nickel				
Silver				
Zinc				
Other (List)				

ITEM VI.

Using current POTW effluent sampling data, fill in Column (1). In Column (2A) list what the Water Quality Standards (Gold Book Criteria) were at the time your existing TBLLs were developed. List in Column (2B) current Gold Book values multiplied by the dilution ratio used in your new/reissued NPDES permit.

Pollutant	Column (1) Effluent Data Analyses Maximum (ug/l)	Average (ug/l)	Columns (2A) (2B) Water Quality Criteria (Gold Book) From TBLLs (ug/l)	Today (ug/l)
Arsenic				
*Cadmium				
*Chromium				
*Copper				
Cyanide				
*Lead				
Mercury				
*Nickel				
Silver				
*Zinc				
Other (List)				

*Hardness Dependent (mg/l - CaCO3)

ITEM VII.

In Column (1), identify all pollutants limited in your new/reissued NPDES permit. In Column (2), identify all pollutants that were limited in your old/expired NPDES permit.			
Column (1) NEW PERMIT Pollutants Limitations (ug/l)		Column (2) OLD PERMIT Pollutants Limitations (ug/l)	

ITEM VIII.

Using current POTW biosolids data, fill in Column (1). In Column (2A), list the biosolids criteria that was used at the time your existing TBLLs were calculated. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria would be and method of disposal.

Pollutant	Column (1) Biosolids Data Analyses Average (mg/kg)	Columns Biosolids Criteria (2A) From TBLLs (mg/kg)	(2B) New (mg/kg)
Arsenic			
Cadmium			
Chromium			
Copper			
Cyanide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Molybdenum			
Selenium			
Other (List)			

NPDES PERMIT REQUIREMENT
FOR
INDUSTRIAL PRETREATMENT ANNUAL REPORT

The information described below shall be included in the pretreatment program annual reports:

1. An updated list of all industrial users by category, as set forth in 40 C.F.R. 403.8(f)(2)(i), indicating compliance or noncompliance with the following:
   - baseline monitoring reporting requirements for newly promulgated industries
   - compliance status reporting requirements for newly promulgated industries
   - periodic (semi-annual) monitoring reporting requirements,
   - categorical standards, and
   - local limits;

2. A summary of compliance and enforcement activities during the preceding year, including the number of:
   - significant industrial users inspected by POTW (include inspection dates for each industrial user),
   - significant industrial users sampled by POTW (include sampling dates for each industrial user),
   - compliance schedules issued (include list of subject users),
   - written notices of violations issued (include list of subject users),
   - administrative orders issued (include list of subject users),
   - criminal or civil suits filed (include list of subject users) and,
   - penalties obtained (include list of subject users and penalty amounts);

3. A list of significantly violating industries required to be published in a local newspaper in accordance with 40 C.F.R. 403.8(f)(2)(vii);

4. A narrative description of program effectiveness including present and proposed changes to the program, such as funding, staffing, ordinances, regulations, rules and/or statutory authority;

5. A summary of all pollutant analytical results for influent, effluent, sludge and any toxicity or bioassay data from the wastewater treatment facility. The summary shall include a comparison of influent sampling results versus threshold inhibitory concentrations for the Wastewater Treatment System and effluent sampling results versus water quality standards. Such a comparison shall be based on the sampling program described in the paragraph below or any similar sampling program described in this Permit.

At a minimum, annual sampling and analysis of the influent and effluent of the Wastewater Treatment Plant shall be conducted for the following pollutants:

a.) Total Cadmium	f.) Total Nickel
b.) Total Chromium	g.) Total Silver
c.) Total Copper	h.) Total Zinc
d.) Total Lead	i.) Total Cyanide
e.) Total Mercury	j.) Total Arsenic

The sampling program shall consist of one 24-hour flow-proportioned composite and at least one grab sample that is representative of the flows received by the POTW. The composite shall consist of hourly flow-proportioned grab samples taken over a 24-hour period if the sample is collected manually or shall consist of a minimum of 48 samples collected at 30 minute intervals if an automated sampler is used. Cyanide shall be taken as a grab sample during the same period as the composite sample. Sampling and preservation shall be consistent with 40 CFR Part 136.

6. A detailed description of all interference and pass-through that occurred during the past year;

7. A thorough description of all investigations into interference and pass-through during the past year;

8. A description of monitoring, sewer inspections and evaluations which were done during the past year to detect interference and pass-through, specifying parameters and frequencies;

9. A description of actions being taken to reduce the incidence of significant violations by significant industrial users; and,

10. The date of the latest adoption of local limits and an indication as to whether or not the permittee is under a State or Federal compliance schedule that includes steps to be taken to revise local limits.

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

TABLE OF CONTENTS

[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. <u>Upset</u>

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

RESPONSE TO COMMENTS
NPDES PERMIT NO. NH0100790
KEENE WASTEWATER TREATMENT PLANT
KEENE, NEW HAMPSHIRE

The U.S. Environmental Protection Agency's New England Region (EPA) and the New Hampshire Department of Environmental Services (NHDES) are issuing a Final National Pollutant Discharge Elimination System (NPDES) Permit for the Keene Wastewater Treatment Plant (WWTP) located in Keene, New Hampshire. This permit is being issued under the Federal Clean Water Act (CWA), 33 U.S.C., §§ 1251 et. seq.

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the Draft NPDES Permit # NH0100790 ("Draft Permit"). The Response to Comments explains and supports EPA's determinations that form the basis of the Final Permit. From May 20, 2020 through July 20, 2020, EPA solicited public comments on the Draft Permit.

EPA received comments from the City of Keene, the Connecticut Department of Energy and Environmental Protection (CTDEEP) and the Ashuelot River Local Advisory Committee (ARLAC) during the comment period.

Although EPA's knowledge of the facility has benefited from the various comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permit that warranted the agencies exercising the discretion to reopen the public comment period. EPA does, however, make certain clarifications and revisions in response to comments. These improvements and changes are explained in this document and reflected in the Final Permit. A summary of the changes made in the Final Permit is provided below. The analyses underlying these changes are contained in the responses to individual comments that follow.

A copy of the Final Permit and this response to comments document will be posted on the EPA Region 1 web site: http://www.epa.gov/region1/npdes/permits_listing_nh.html.

A copy of the Final Permit may be also obtained by writing or calling George Papadopoulos, USEPA, 5 Post Office Square, Suite 100 (Mail Code: 06-1), Boston, MA 02109-3912; Telephone: (617) 918-1579; Email papadopoulos.george@epa.gov.

Table of Contents

Appendix A - General Response to Comments on Long Island Sound (“LIS”) NPDES Out-Of Basin Total Nitrogen Permitting Approach

Appendix B - Springfield, Massachusetts NPDES Permit comment letters

I. Summary of Changes to the Final Permit

1. The final permit limit for aluminum has been revised from 108 to 109 ug/L. See Response 9.

2. Part I.G.4 of the Final Permit regarding phosphorus monitoring, has changed the term “biannually” to “once every two years”. This monitoring is required once every two years, but the draft permit had mistakenly called this frequency “biannually,” which is defined as twice per year. In addition, the requirement for State approval of this sampling plan has been eliminated upon request by the NHDES.

3. The Final Permit limits for total copper have been revised to a monthly average of 6.2 ug/L and a daily maximum of 8.2 ug/L. See Response 14.

4. The Final Permit has changed the Industrial Pretreatment Program (IPP) Annual Report due date from November 1st to December 1st. See Response 25.

5. EPA has modified the language in Part I.G.3.b to require tracking of nitrogen loading amounts based on all available data from the previous calendar year and the previous five calendar years. See Response 33.

6. The required beginning date for the electronic submittal of Industrial User and pretreatment related reports in Parts I.H.3 and I.H.6 of the Final Permit has been changed from 2020 to 2025 due to a change in federal regulations.

II. Specific Comments and Responses

Comments are reproduced below as received; they have not been edited.

In addition to the specific responses below, please refer to the General Response in Appendix A.

A. Comments from Elizabeth A. Dragon, City Manager for Keene, NH, by email on July 17, 2020.

Comment 1

Limitations Unsupported by Federal or State Law Are Impermissible because they are Arbitrary and Capricious

<u>Rolling Annual Average Total Nitrogen and Special Condition I.G.3</u>

The proposed Rolling Average Total Nitrogen limitation and Special Condition I.G.3 in the Draft Permit are not based on water quality standards, or site-specific data. The conclusion that a uniform 10 mg/L Total Nitrogen concentration for Keene and other NH permittees in the Connecticut, Housatonic, and Thames rivers watersheds is not based on sound and peer-reviewed science.

The assessment of a design flow-based Total Nitrogen concentration for NH WWTFs within the LISW is not linked to any study, research, or available data. The 10 mg/L concentration imposed upon Keene in the writing of their Draft Permit does not indicate how their discharge is similar or differs from that of the other five (5) WWTFs with design flows between 1.5 mgd and 6 mgd, how each specific discharge location and characteristics within the LISW. There is no published data indicating a specific Total Nitrogen concentration manifests itself into a particular outcome of benefit to the LISW. In short, there is no rationale for the imposition of this limitation.

EPA's inclusion of total nitrogen rolling annual average mass-based loading limits does not adhere to any of the available methods for establishing effluent limits. Though EPA acknowledges that the Total Maximum Daily Load (TMDL) target of a 25% reduction from 1998 baseline loading is currently being met – and that the overall loading from WWTF discharges in to the Connecticut River is actually 15% below the TMDL Waste Load Allocation (WLA) – EPA expresses concern that future hypothetical growth of cities and towns in NH may reverse the current reductions. Moreover, though Waste Load Allocations resulted in these reductions, EPA posits that these are not enough, in and of themselves, to protect the waters of the Connecticut River (as they have continually done) if cities and towns grow. Despite EPA's stated goal, the EPA must still comply with the requirements for setting effluent limits as required in 40 CFR § 122.44(d)(vi). This provision requires effluent limits to be established using: (1) the use of a calculated numeric water quality criterion, which is derived using a proposed state criterion or an explicit state policy or regulation interpreting its narrative water quality criterion; (2) using EPA's water quality criteria developed pursuant to Section 304(a) of the CWA on a case-by-case basis; or (3) an indicator parameter for the pollutant, provided certain requirements are met. EPA's proposed total nitrogen limit of 10 mg/L was developed using proposed future population growth as a critical criterion; this is not a listed basis for developing the effluent limitations, and therefore, is not a permitted approach under 40 CFR § 122.44(d)(vi).

Without such a foundation, these proposed permit limits are impermissibly arbitrary and capricious.

These issues are described in further detail below and therefore, Keene respectfully requests removal of the Rolling Average Total Nitrogen limit from the Final Permit.

Response 1

EPA observes that the comments overlap with technical and legal objections made by the Springfield (Massachusetts) Water and Sewer Commission in connection with its recent NPDES permit reissuance and appeal. These issues were resolved in EPA's favor by the Environmental Appeals Board in a 93-page decision. For purposes of efficiency, EPA incorporates the following documents, which are responsive to the commenter's objections, into this response to comments:

> Response to Comments, Springfield Water and Sewer Commission, Springfield Regional Wastewater Treatment Facility, NPDES Permit No. MA0101613, September 30, 2020
>
> https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/Attachments%20By%20ParentFilingId/F521C32ECFA926278525863E00715EBB/$FILE/EX_S%20Response%20to%20Comments.pdf
>
> Response to the Petition for Review, Springfield Water and Sewer Commission, Springfield Regional Wastewater Treatment Facility, NPDES Permit No. MA0101613, NPDES Appeal No. 20-07, December 11, 2020.
>
> https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/Filings%20By%20Appeal%20Number/11443A888232A1C88525863B006D4491?OpenDocument
>
> *In re Springfield Water and Sewer Commission*, 18 E.A.D. 430 (EAB 2021).
>
> https://yosemite.epa.gov/OA/EAB_WEB_Docket.nsf/Filings%20By%20Appeal%20Number/61585EEC1C328394852586E20073D0FD/$File/Springfield%20Water%20&%20Sewer%20Commission.pdf

EPA disagrees with the commenter's assertions that there is no basis for the nitrogen limit. As discussed in section II.E of the General Response provided in Appendix A, EPA calculated the nitrogen limit in accordance with 40 C.F.R. § 122.44(d)(1)(vi)(A) (translation of narrative WQS into numeric effluent limitation),[1] 40 C.F.R. § 122.44(d)(1)(vii)(A)-(B)(requiring compliance with WQS and consistency with assumptions and requirements of an available for WLA), and Connecticut antidegradation requirements. *See* 40 C.F.R. § 122.44(d)(4), (5). EPA disagrees with the commenter's unsubstantiated assertion that EPA lacks "stud[ies], research, and [] data" to support the nitrogen limit. Please refer to the General Response, including Section III.E.

Comment 2

<u>Total Nitrogen Numerical Limit is not based on Water Quality Standards</u>

The Draft Permit indicates that the TMDL and associated WLA related to the Long Island Sound watershed (LISW) requires an aggregate 25% reduction from the baseline total nitrogen loading estimated in the TMDL. However, the data provided in the Draft Permit indicates that the 25% reduction is "currently being met", with overall discharges from MA, NH, and VT WWTFs being 11% below the WLA.

[1] EPA assumes that this is the section commenter intended to cite (rather than "40 CFR § 122.44(d)(vi)".)

EPA utilized a 10 mg/L Total Nitrogen concentration to implement a Rolling Average Total Nitrogen mass-based limit in the Draft Permit based solely on its receipt of LISW stakeholder input expressing concern regarding theoretical, possible future loading increases. [*FN:* The documents cited in footnote 13 on page 26 of the Fact Sheet: Connecticut Department of Energy and Environmental Protection letters to EPA dated February 7, 2018 and April 27, 2018; Connecticut Fund for the Environment letter to EPA dated February 7, 2018; and Connecticut River Conservancy letter to EPA dated February 18, 2018 are not readily available for review by Keene. The propriety of reliance on these letters in developing the total nitrogen rolling annual average mass-based loading limits in the Draft Permit cannot properly be commented upon without provision of full and accurate copies of each.] EPA further indicates its intent to apply these limitations to all permittees within the above watersheds based on the design flow of the respective WWTFs.

This approach does not meet the standard set forth in 40 CFR § 122.44(d)(vi)(A) which specifies that effluent limits are to be established "using a calculated numeric water quality criterion for the pollutant". Thus, in order to properly impose a Total Nitrogen effluent limit, EPA must first establish a numeric WQS criterion. The 10 mg/L Total Nitrogen concentration included in the Draft Permit for the assessment of the Rolling Average Total Nitrogen limitation, and Special Condition I.G.3.a., are thus not founded on a proper basis. Permit effluent limits should be imposed to be protective of receiving water conditions with consideration for water quality characteristics in establishing criteria, not based on performance of permittee discharge. There has been no implementation plan developed based on the TMDL to allocate each discharger a portion of the allowable Total Nitrogen load, and therefore attempting to develop a WLA through individual permits is inappropriate.

Response 2

EPA extensively detailed its derivation of the permit limit for TN, including through the use of a calculated numeric criterion demonstrated to achieve designated uses under 40 C.F.R. § 122.44(d)(1)(vi)(A), in the General Response. *See, e.g.*, Section II. E. Upon an evaluation of years of ambient monitoring data and other relevant technical and scientific information, EPA has determined that the nitrogen load is exceeding the assimilative capacity of LIS and is causing or contributing, or has the reasonable potential to cause or contribute, to pervasive nutrient-related impairments and violations of water quality standards. EPA's conclusions are based on the weight of the evidence and draw on multiple lines of evidence. Although this is a simplified approach that does not attempt to quantify individual subprocesses involved in eutrophication, or to demonstrate cause and effect between each link in the eutrophic cycle, it is entirely appropriate for use in the context of NPDES permitting when assessing large scale nutrient load reductions over relatively long averaging periods. Capping the load based on historical plant performance is a reasonable approach and one that makes sense given one of the principal rationales underlying the limit—that is, antidegradation, which turns on new or increased discharges of pollutant, whether or not that discharge has been authorized under an NPDES permit.

While there will always be an irreducible amount of uncertainty given the varied sources of nitrogen loading into Long Island Sound and the size and complexity of that waterbody, EPA is nevertheless obligated to exercise its scientific expertise and apply its technical judgment based on the information it has at the time of permit reissuance, which under the Act is called for at regular intervals not to exceed five years. *See Upper Blackstone Water Pollution Abatement Dist. v. U.S. Envtl. Prot. Agency*, 690 F.3d 9 (1st Cir. 2012), cert. denied, 133 S. Ct. 2382 (2013) ("[N]either the CWA nor EPA regulations permit the EPA to delay issuance of a new permit indefinitely until better science can be developed, even where there is some uncertainty in the existing data."); *Ethyl Corp. v. EPA*, 541 F.2d 1, 28 (D.C.Cir.1976) (en banc) ("[R]ecognizing ... the developing nature of [the field].... [t]he [EPA] Administrator may apply his expertise to draw conclusions from suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections from imperfect data, from probative preliminary data not yet certifiable as 'fact,' and the like."). But here, once again, what remains clear on the record before EPA is the fact that large amounts of nitrogen contribute to water quality impairments throughout the LIS. *Miami–Dade County v. EPA*, 529 F.3d 1049, 1065 (11th Cir.2008) (holding that the "EPA is compelled to exercise its judgment in the face of scientific uncertainty unless that uncertainty is so profound that it precludes any reasoned judgment"). In light of this fact and applicable case law construing the Act, EPA is more than justified to proceed with the imposition of reasonable permit effluent limits, designed to cap the aggregate out-of-basin load, for dischargers contributing to severe ongoing water quality impairments. While the commenter might prefer that EPA follow a different analytical process than it did, or consider or rely on other sources of information, nothing in the CWA, its implementing regulations, or Board precedent requires EPA to conduct the type of modeling, planning or cause-and effect analysis that the commenters state or imply is lacking in order to determine the existence of a reasonable potential and to impose a necessary limit under 40 CFR § 122.44(d). *See In re Upper Blackstone Water Pollution Abatement Dist.*, 14 E.A.D. 577, 599, 601 (EAB 2010), aff'd. 690 F.3d 9 (1st Cir. 2012), cert. denied, 133 S. Ct. 2382 (2013).

The letters referenced by the commenter were available upon request during the public notice period, as described in the Fact Sheet (Section 8), the Public Notice and the Public Notice Extension. EPA received no such requests from commenter. The letters are attached hereto as Appendix B for your reference.

Please also refer to the General Response.

Comment 3

Total Nitrogen Numerical Limit is not based on Site-Specific Data

EPA determined that permittees in the LISW which experience population growth or new industrial discharges shall be subject to the 10 mg/L Total Nitrogen concentration. EPA further specifies in the Draft Permit that any WWTF within the LISW that has a design flow equal to or greater than 1.5 mgd and up to 6 mgd is subject to the 10 mg/L Total Nitrogen concentration. However, the Draft Permit contains no information linking design flow to either increased population or new industrial discharges in Keene.

Imposition of effluent limitations without site specific supporting data is impermissibly arbitrary and capricious. Further, Keene's data does not support EPA's underlying assumptions as described below:

- Assumption: only communities served by larger WWTFs can experience population growth or be the site of new industrial dischargers.

Response: There is no indication that this is accurate. Such projections are the result of numerous, individual demographic decisions and long-term societal shifts. These types of projections are further complicated by the availability of developable and redevelopable property in many communities in the region, including many not served by any centralized wastewater infrastructure. This is borne out by data derived from the U.S Census Bureau, Population Division which indicates that from 2010 to 2019, Keene's population dropped from 23,515 to 22,786.

- Assumption: Permittees and associated WWTFs that experience an increase in industrial dischargers will result in increased nitrogen loadings.

Response: A number of industrial users in Keene and elsewhere across the U.S. do not discharge greater concentrations of various forms of nitrogen. There is no documentation indicating that the mere presence of industrial users translates to increased nitrogen loading. In fact, the data indicates that increased residential and CSO discharge are more likely to increase nitrogen loading. The City is aware that the main contributors to the collection system are residential, with a total of 98% of users as residential. Further, data shows that the number of industrial users classified in the City have not greatly increased from 2015 to 2020. This period of societal disruption and comprehensive state-wide executive orders due to the COVID-19 pandemic can also be expected to negatively impact the number of industrial users. It is anticipated that there will be no increase in industrial users at this time due to the implications of this pandemic. The implications have already led to the discontinuation of one of the largest industrial users in Keene, and Keene State College has temporarily closed normal operations and seasonal activities.

- Assumption: The Draft Permit optimization requirements for nitrogen removal are insufficient to address increased nitrogen load from industrial dischargers to the WWTF.

Response: The Draft Permit requires documentation of nitrogen removal optimization efficiencies per Special Condition I.G.3.b. The annual report required under this condition documents actual nitrogen loadings to the WWTF and Total Nitrogen discharged from the WWTF. Keene implements an Industrial Pretreatment Program which requires industrial dischargers to obtain authorization for discharge to the WWTF. Significant Industrial Users from 2015 to 2020 have increased by one.

- Assumption: Increased nitrogen loadings to a specific WWTF will cause an exceedance of the 25% reduction required by the WLA.

Response: There is no evidence that an increased WWTF Total Nitrogen load will cause an exceedance of the LISW WLA. Facilities are designed to remove pollutant loadings to reach enforced criteria. The Draft Permit and the 2007 Permit outline requirements specific to industrial users to monitor the loadings received at the WWTF, of which the type of treatment can remove. Quantifying the relationship between influent loadings and removal success is specific to each permittee's type of treatment methods and should not be based on assumptions.

Response 3

EPA disagrees with the commenter's characterization of the assumptions made in setting effluent limits for total nitrogen for out-of-basin dischargers. A more detailed discussion of the approach used is provided in the General Response in Appendix A, particularly section I.

EPA also disagrees that it must project the impacts on LIS from each individual discharger prior to imposing a limit under Section 301 of the Act. Rather, EPA may address pollutant impacts on broader scales, such as watershed or basin level, in order to carry out the objectives of the Act, including achievement of WQS of downstream affected states.

EPA used site-specific data and information, including the size and location of facilities, from facilities throughout the LIS watershed when determining the need for a limit. For example, Appendix C of the Fact Sheet listed an average nitrogen loading value for each facility for the period of 2014-2018. The values for some facilities were estimated based on the average nitrogen concentration and flow from other years, or if no data were available for any other years, the assumed concentration of 19.6 mg/L. For Keene, there was no data available for previous years (as the 2007 permit did not include a nitrogen monitoring requirement) so the assumed concentration of 19.6 mg/L was used. This figure was based on data from 2004 and 2005 for secondary treatment facilities in Massachusetts that did not have nitrification requirements.

EPA does not assume that only communities served by larger WWTFs can experience population growth or accommodate new industrial dischargers. As described in the General Response, the imposition of numerical limits in the nitrogen permitting approach focuses on larger WWTFs because they represent the majority of nitrogen loading to the LISW. Also, as explained in the General Response, larger facilities are better able to spread the cost of any required upgrade over a larger user base. Although some industrial users (IUs) have temporarily or permanently suspended operations and associated discharges, there is a likelihood that these IUs could resume operations during this permit term, once COVID restrictions have been lifted. The commenter's doubt that nitrogen discharges from the Keene WWTP will cause an exceedance of the WLA and the commenter's implied assertion that the permit's optimization requirements are sufficient to address nitrogen loading are addressed in the General Response.

The commenter implies that the total nitrogen effluent limit for Keene is 10 mg/L. It is not. The effluent limit is 501 lb/day expressed as a rolling annual average. At current annual average effluent flows of 2.4 to 3.4 MGD[2], this is equivalent to an annual average concentration limit of 18 to 25 mg/L.

The tiers in New Hampshire progress from monitoring only, to optimization, to a limit based on 10 mg/L and, finally, to a limit based on 8 mg/L. These tiers were listed in the Fact Sheet and are shown below:

Annual Average Total Nitrogen Limits for New Hampshire WWTP Dischargers to the Long Island Sound Watershed

Facility Design Flow, Q_D (MGD)	Number of Facilities	Annual Average TN Limit (lb/day)
$Q_D > 6$	0	Q_D (MGD) * 8 mg/L * 8.34 + optimize
$1.5 \leq Q_D \leq 6$	5	Q_D (MGD) * 10 mg/L * 8.34 + optimize
$0.1 \leq Q_D < 1.5$	14	Optimize
$Q_D < 0.1$	6	TN monitoring only

The design flows for the New Hampshire facilities compared to the Massachusetts facilities are slightly higher for the upper tiers (i.e., 1.5 vs 1 MGD and 6 vs 5 MGD). These differences are based on a number of factors, including the fact that the New Hampshire dischargers are further from Long Island Sound than the Massachusetts dischargers, resulting in more attenuation, on average. By evaluating delivered load (instead of discharged load), the differences in attenuation were accounted for in the TMDL, and EPA also considered these differences in the overall permitting approach. The LIS TMDL did not assign individual WLAs for each of the out-of-basin POTWs, but instead assumed that the out-of-basin load would be reduced from the baseline, through the imposition of NPDES permit limits. Allocating the load among facilities is therefore necessary and basing those allocations on factors related to water quality and the circumstances of the individual facilities (such as a size) is a reasonable exercise of discretion. Regarding Keene specifically, EPA notes that this is the largest discharger in New Hampshire to the Long Island Sound and, as the comment notes, discharges to a tributary of the Connecticut River (i.e., not to the mainstem of the Connecticut River). As noted in the Keene Fact Sheet, the 7Q10 upstream of the facility is only 11.7 cfs, indicating that attenuation is more likely to occur immediately downstream of Keene's discharge than in much larger receiving waters. For these reasons and those presented in Appendix A, EPA has determined that it is appropriate to apply limits in the manner presented in the tiers above.

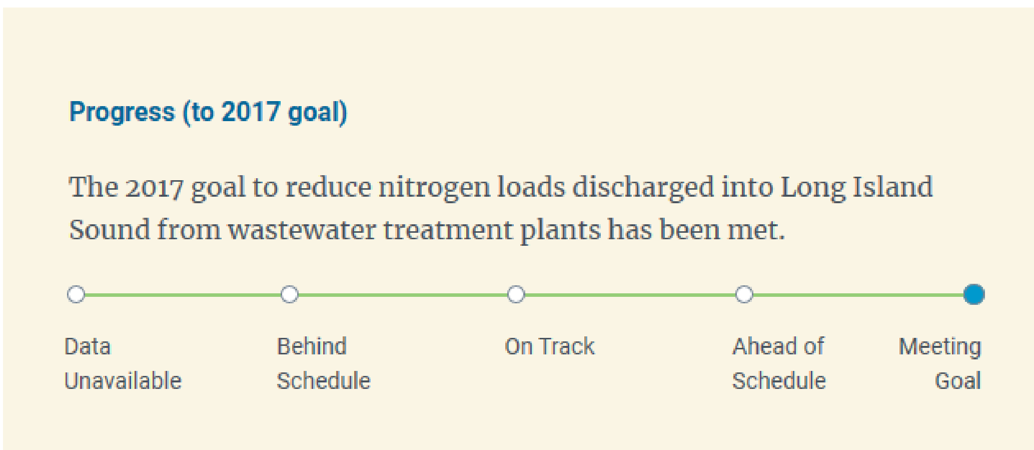
Comment 4

The Rolling Annual Average of Total Nitrogen limitation does not utilize sound and peer-reviewed science in the application of a WWTF design flow threshold 10 mg/L. Total Nitrogen concentration to this and other NH permittees within the LISW.

[2] Range of annual average flow for 2013 to 2019.

Table 3 of the Fact Sheet of the Draft Permit presents the methodology used to assess Annual Average Total Nitrogen limitations for NH WWTFs in the LISW. This methodology appears without science-based support. Specifically:

- There is no background data provided within the Draft Permit indicating why a Total Nitrogen concentration was selected or why a specific concentration or alternate optimization or monitor-only requirement is imposed.
- There is no indication that a specific Total Nitrogen concentration will provide a specific outcome to the LISW. The LISW TMDL and associated WLA do not indicate that such numeric Total Nitrogen concentrations from NH WWTFs are required, nor that the baseline loadings and associated 25% aggregate reduction is impacted by this numerical permit limitation.
- There is no WLA provision stating that further reductions in Total Nitrogen loadings are required at present.
- A review of available Long Island Sound Study (LISS) documents does not identify additional requirements or recommendations for numeric Total Nitrogen limitations to be imposed upon NH point source discharges. In fact, LISS published material indicates that the 2017 goal to reduce nitrogen loads into LISW from WWTFs has been met. (Graphic source: https://longislandsoundstudy.net/ecosystem-target-indicators/nitrogen-loading/)



Subsequent goals are focused on nonpoint sources and are therefore irrelevant to Keene's Draft Permit.

The Rolling Average methodology is an average of averages, which does not account for the variability from month to month, the number of weeks per month, and actual flow on a sample day versus other non-sampling days. All of this causes inaccuracies.

Response 4

The General Response in Appendix A describes the necessity of the nitrogen limit and EPA's process for calculating it, as well as issues relating to cause and effect, which is not a demonstration that EPA needs to make prior to imposing a protective effluent limitation.

Although EPA typically establishes monthly average limitations in NPDES Permits, the alternative 12-month rolling average loading limit that was established for total nitrogen in this Permit specifically accounts for variability from month to month. Whereas there could be individual monthly average values over a 12 month period that exceed the nitrogen loading limit, expressing the limit as a 12 month rolling average would allow for outlying months to be smoothed out by other months, thereby accounting for month to month variability. The effluent limit is a rolling average of the TN discharged for the reporting month (in lb/day) and the monthly average for TN discharged (also in lb/day) of the previous 11 months.

Comment 5

Special Condition I.G.3 requirements are Unsupported by the CWA

The one year requirement to conduct "an evaluation of alternative methods of operating the existing waste water treatment facility to optimize the removal of nitrogen in order to minimize the annual average discharge of total nitrogen and submit a report to EPA and NHDES documenting this evaluation and presenting a description of recommended operational changes" is not consistent with the goals of the CWA. It is also unclear by whom and to whom the recommendations are to be made, and what subsequent actions are expected in response to the recommendations.

As previously indicated, the basis of the Rolling Average Total Nitrogen limitation is arbitrary, and the further mandate to evaluate how to "minimize" the annual average mass discharge of total nitrogen is highly subjective. This condition is open to broad interpretation and therefore represents real financial risk to Keene and its users.

<u>Given there is no WQS rationale for further reductions in nitrogen discharge loadings, the requirement for this evaluation, and more specifically the requirement to provide "recommendations", Keene respectfully requests Special Condition G.3. be removed in its entirety from the Final Permit.</u>

Response 5

See Section III.C of the General Response in Appendix A for a description of EPA's authority to impose the optimization requirement and further clarification of EPA's intent for the requirement

As for the commenter's assertion that the Special Condition is "unclear" and "open to broad interpretation," EPA disagrees that the optimization requirement is vague. Optimization has been defined, for example, as the process of identifying the most efficient or highest quality outcome, given current constraints, by maximizing positive factors and minimizing negative factors. A permittee applying this or other definition in common usage would not be at risk of arbitrary enforcement. Rather, this condition gives a person of ordinary intelligence a reasonable opportunity to know what is prohibited and comply with the requirement by considering objective factors, so that they may act accordingly. The operators of the facility, as evidenced by their comments, have a deep and nuanced expertise in nutrient removal capabilities and constraints of the plant, and of the factors that impact plant performance.

Additionally, permit Section I.G.3.a indicates that "[t]he methods to be evaluated shall include, but are 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." The Environmental Appeals Board recently held that a list of similar "discrete physical and operational activities are plain and clear in and of themselves," "quite specific", and – directly relevant to the Commenter's assertions here – not impermissibly vague. *See In re Springfield Water and Sewer Commission,* 18 E.A.D. 430 (EAB 2021) at 476-479. *See also Springfield,* EPA Region 1's Response to the Petition for Review, at 36-37; *see also Springfield,* Response to Comments, at 31-32.

The optimization requirement functions in tandem with the nitrogen WQBEL to ensure compliance with all applicable legal requirements. The WQBELs developed as part of the LIS Out-of-Basin Total Nitrogen Permitting Approach ensure that discharges from all out-of-basin dischargers, in the aggregate, do not violate the TMDL. Each permit's optimization requirement, in contrast, ensures that individual facilities take reasonable steps to minimize their nitrogen discharge levels to the benefit of LIS, which is above its assimilative capacity for nitrogen and is exhibiting signs of severe cultural eutrophication. In other words, although the nitrogen WQBEL and the nitrogen optimization requirement serve similar objectives, they are ultimately distinct, independent requirements. The permittee must achieve the WQBEL **and** comply with the permit's optimization requirements.

Comment 6

Reporting Requirements is Inappropriate for a WWTF in New England

Nitrogen removal during cold weather months is well understood to be a challenge. Operational modes vary greatly from summer months to winter months. All reporting requirements associated with all nitrogen effluent characteristics, with the exception of Rolling Average Total Nitrogen, which is addressed elsewhere in this section, and Ammonia Nitrogen as N, are respectfully requested to be modified to "Report Only" seasonal rolling averages bracketed for the periods May 1 through October 31 and November 1 through April 30.

Response 6

This factor was considered in the establishing of an annual average loading limit for nitrogen, which would allow for changing operational conditions between cold and warm weather months. Year-round data is necessary to project nitrogen loading levels. Therefore, EPA is denying the Permittee's request to change to a "Monitor Only" requirement for any effluent nitrogen characteristics.

See also Response 4.

Comment 7

Winter Ammonia Chronic Effluent Limit

The Draft Permit proposes a winter ammonia effluent limit of 9.9 mg/L, based on the criteria calculated using an assumed pH of 6.5 for both winter and summer, as well as a winter temperature of 5°C and a summer temperature of 25°C. The assumed pH of 6.5 represents the median value of the effluent monitoring data reported in Appendix A of the Draft Permit. pH has an indirect relationship with chronic ammonia based on the NHDES 2016 criteria calculation; a lower pH yields a higher ammonia criteria value. The development of criteria for each constituent, based on state and federal approved standards, should consider the receiving water characteristics in order to fully evaluate the amount of a specific parameter that the receiving water can take and maintain protective of the environment and its existing conditions. The assumed pH based on the effluent of the discharge fails to account for the receiving water conditions.

Keene collected ambient pH data in the receiving water upstream of the discharge in 2018 and is included as part of Appendix B of this report. The following table represents the median of the summer and winter months; this was a substantial commitment that resulted in a robust dataset, as indicated by the number of samples collected.

Table 1.1 Upstream pH Data from 2018 Sampling

Months	Number of Samples	Median pH (S.U.)
Summer (June 1- Oct. 31)	73	6.0
Winter (Nov. 1- May 31)	63	5.8

In addition to the data collected by the City, other Ashuelot River data is available as part of the Volunteer River Assessment Program (VRAP). The intention of this program, as referenced in the 2007 VRAP report, is ***"to assist NHDES in evaluating water quality throughout the state"***. NHDES provides reports and available data collected through VRAP for public viewing. The samples collected as part of VRAP are collected in the summer months (June 1- October 31). The annual reports published between 2007 and 2010 utilize collected data which is interpreted as they relate to the surface WQS; available data is also collected by VRAP and published through NHDES for the years 2011 through 2019. Sampling station locations are arranged by VRAP staff annually. In 2007, data was collected at a total of 13 sampling stations in the Ashuelot River Watershed.

The data presented in Table 1.1 was collected upstream of Keene's discharge at the Martell Court Bridge. Based on the description of VRAP sampling locations identified on the NHDES website, VRAP's sampling station 17-ASH is located at the Martell Court, similar to the location of Keene's 2018 data collection. However, there is no available data in the past 10 years collected at 17-ASH. Therefore, the data collected at sampling station 18-ASH, located at Route 101, was analyzed. A comprehensive review of the data collected through VRAP may be found in Table 3.1 of Section 3.0. Data collected over the past 5 years at sampling station 18-ASH may be found below in Table 1.2. The data collected as part of VRAP confirm the low pH range values found as part of Keene's data collection.

Table 1.2 VRAP Receiving Water pH Data at 18-ASH, 2015-2019			
Sampling Station	**Year**	**Samples Collected**	**pH Data Range**
18-ASH	2019	5	5.94-6.15
18-ASH	2018	5	5.97-6.35
18-ASH	2017	5	5.08-5.99
18-ASH	2016	5	6.30-6.57
18-ASH	2015	4	6.36-6.68

Of the dataset shown in Table 1.2, 21 out of the 24 samples collected had a pH below the water quality standard of 6.5. There is a notable amount of variability in this dataset, likely due to the limited number of samples collected annually. Based on Keene's robust and comprehensive dataset throughout 2018, Keene is satisfied that the dataset presented in Table 1.1 most appropriately depicts receiving water conditions upstream of the discharge and therefore Keene evaluated the winter ammonia criteria based on the median of the pH values collected by the City.

Since the winter chronic ammonia was the only parameter determined to require a more stringent limit based on the new criteria calculated with 6.5 pH, the criteria was recalculated using a site-specific pH of 5.8 representing seasonal receiving water conditions. The calculation for chronic winter ammonia criteria may be found below:

$$\text{Criteria} = 0.8876 * \left[\left(\frac{0.0278}{1 + 10^{7.688-5.8}}\right) + \left(\frac{1.1994}{1 + 10^{5.8-7.688}}\right)\right] * \left[2.126 * 10^{0.028*(20-7)}\right]$$

The criteria for chronic winter ammonia using the above equation yields a value of 5.2 mg/L. If a new limit were to be calculated based on the revised criteria, the chronic winter ammonia limit would be 11.5 mg/L. The 2007 permit established a chronic winter ammonia effluent limit of 12 mg/L. <u>Keene respectfully requests that EPA review the site-specific calculations and considerations depicted in Section 1.1.7 below and that the effluent limits be re-evaluated considering the seasonal receiving water pH data. [*FN:*</u> The new information available to complete these calculations justifies this revised limit as does good cause. 40 CFR 122.44(l)(2)(i)(B)(1); *Great Basin Mine Watch v. State of Nevada*, No. 43943, 2006 WL 1668890, at *3 (Nev. Apr. 19, 2006).]

Response 7

EPA and NHDES do not believe it is appropriate to use an impaired pH value to calculate permit limits, because such a value does not represent compliance with State WQS. Therefore, the draft permit limit of 9.9 mg/L, which was calculated using a pH of 6.5 S.U., has been maintained in the Final Permit.[3]

Comment 8

Alternative Low Flow on Ammonia Limit Development

Section 2.0 of this report (Comment 9 below) outlines comments requesting the use of an alternative low flow in place of the 7Q10. The 7Q10 calculated for the facility and identified in the Fact Sheet of the Draft Permit is used to establish the reasonable potential for a constituent to cause or contribute to an exceedance of WQS, as well as to developing permit effluent limits for constituents. If the request for the use of an alternative low flow is granted through the Final Permit, Keene respectfully requests that the Reasonable Potential Analysis Table in Appendix B of the Draft Permit reflect this modification, and that the pollutant effluent limits be adjusted.

Response 8

As explained in Response 9 below, NHDES has not granted the Permittee's request to use an alternate low flow which would result in a larger dilution factor.

Comment 9

7Q10 low flow

The City has assessed EPA's approach to developing the 7Q10 upstream flow conditions used to establish the permit limits and has included the following comments.

Alternative Low Flow
The permit includes a calculation for $WWTF_{ACTUAL}$ of 4.22 cfs. The correct value, based on a 2.65 mgd value, is 4.10 cfs. The value of 4.10 cfs should be used for $WWTF_{ACTUAL}$ through-out the calculations. This is noted in full recognition that the change in value does not drastically change the resultant calculations.

State of NH law supports use of August median stream flows in lieu of 7Q10 calculations to establish nutrient discharge limits for aquatic life and human health criteria. NH RSA 485-A:8(II). The NH. Department of Environmental Services (NHDES) published a presentation by the NH Water Quality Standards Advisory Committee, dated October 11, 2018, entitled "Alternatives to 7Q10 for Nutrient Permitting." This presentation (which discusses total phosphorus) includes extensive discussion of appropriate alternatives to 7Q10 to establish nutrient discharge limits. For instance, Vermont uses the Summer low median monthly flow (generally August) for an index flow. NHDES concludes:

[3] EPA additionally notes that the regulation cited by the commenter, 40 C.F.R. § 122.44(l)(2)(i)(B)(1), does not apply. The applicable source of law is CWA § 402(o) [33 U.S.C. § 1342(o)]. In any event, a "new information" anti-backsliding exception is inappropriate here because of the issues described above.

August median flow may be appropriate for NH nutrient permitting because it:

- Is similar to VT and ME (and other states);
- Addresses duration concern with the 7Q10; and
- Flow is less than or equal to the August median flow ~17% of the year (62 days) and ~ 0.5% (2 days) for the 7Q10 flow. 62 days is sufficient time for a river to respond to nutrients."

https://www.des.nh.gov/organization/divisions/water/wmb/wqs/meetings/2018/documents/20181011-7q10-alternatives.pdf

Based on August data at for the Ashuelot River at West Swanzey, USGS gage 01160350 for the years 1994 through 2019, and USGS gage 01158000 for the Ashuelot River below the Surry Mt Dam August data for 1946 through 2019, the dilution factor calculations would be modified as follows:

Permit unadjusted downstream = 26.3 cfs.

August 1994-2019 mean of monthly discharge, USGS gage 01160350 downstream = 255 cfs

Permit unadjusted upstream = 2.65 cfs.

August 1946-2019 median flow, USGS gage 01158000 upstream = 56 cfs

$$Q_{DSG,adj} = Q_{DSG} + (0.28)(Q_{WWTF,actual}) - (Q_{WWTF,actual})$$

$$Q_{DSG,adj} = 255 + (0.28 * 4.10) - 4.10 = 252.02 \text{ cfs}$$

$$7Q10_{unadj} = ((Q_{DSG,adj} - Q_{USG})\left(\frac{Q_{D1}}{Q_{D2}}\right) + Q_{USG} = 166.57 \text{ cfs}$$

$$7Q10_{unadj} = ((252.05 - 56)\left(\frac{10.6}{18.8}\right) + 56 = 166.57 \text{ cfs}$$

$$7Q10_{final} = 7Q10_{unadj} - (0.28)(Q_{WWTF,design})$$

$$7Q10_{final} = 166.57 - (0.28)(9.28) = 163.97 \text{ cfs}$$

$$\text{Dilution Factor} = (0.9) * (Q_s + Q_{WWTF,design})/Q_{WWTF,design}$$

$$\text{Dilution Factor} = (0.9) * \frac{163.97 + 9.28}{9.28} = \mathbf{16.88}$$

There are significant impacts from this calculation; namely, all WQBEL will need to be revised as a result of this change in methodology. Keene respectfully requests approval of this modified Dilution Factor calculation and further asked that it be incorporated into the Final Permit, with reasonable potential analyses and WQBEL modified and adjusted accordingly and in accordance with the CWA.

Further, Appendix B outlines the Reasonable Potential Analysis Table, which identifies permit effluent limits for pollutants if a reasonable potential is found to cause or contribute to an exceedance to WQS. The upstream 7Q10 flow listed in the Reasonable Potential Analysis Table is listed as 11.4 cfs. Keene respectfully requests that the Reasonable Potential Analysis Table in Appendix B be modified in the Final Permit to represent 11.7 cfs to remain consistent with the 7Q10 set forth in the Draft Permit.

Response 9

EPA disagrees that it is appropriate to use August median stream flows in lieu of 7Q10 calculations to establish nutrient discharge limits for aquatic life and human health criteria. The requirement to use the 7Q10 flow to calculate permit limits remains in NH's WQS and any revision to these WQS would have to be reviewed and approved by EPA prior to its implementation.

NHDES' Water Management Bureau (WMB) is working to develop a policy with flows other than 7Q10 and a phosphorus criterion other than 100 ug/L, as this instream concentration target would not be appropriate with the use of a higher flow, but that policy has not been finalized yet. Regarding the assertion that the State of NH supports the use of August median stream flows in lieu of 7Q10 calculations to establish nutrient discharge limits for aquatic life and human health criteria, NHDES's position is that this is not necessarily true. It would be more appropriate to replace the word "supports" with "allows" or "does not prohibit". RSA 485-A:8.II simply says, "The commissioner shall not calculate nutrient discharge limits for aquatic life and human health criteria based on 7Q10 flow or such other flow criteria more restrictive than 7Q10." It does not say that the August median flow "should" be used in calculating nutrient limits.

The 7Q10 calculation in the Fact Sheet used the cited $Q_{WWTF,actual}$, which represents the actual average flow for the Keene WWTF for the past 5 years. As noted in Section 5.1.1 of the Fact Sheet, the median flow value over the past 5 years was 2.65 MGD, which is equivalent to 4.1 cfs. Although the calculation for $Q_{DSG,adj}$, representing the adjusted 7Q10 flow at downstream Ashuelot River at West Swanzey Gage (01160350), should have used the flow value of 4.1 cfs for $Q_{WWTF,actual}$, it mistakenly used the value of 4.22 cfs. However, the calculated value of $Q_{DSG,adj}$ is 23.3 cfs using either of these values and therefore, the final 7Q10 value would also be the same, or 11.7 cfs. This is the corrected calculation:

$$Q_{DSG,adj} = Q_{DSG} + (0.28)(Q_{WWTF,actual}) - Q_{WWTF,actual}$$

$$= 26.3 + (0.28)(4.1) - 4.1 = \mathbf{23.3}$$

where

Q_{DSG} = unadjusted 7Q10 flow at downstream USGS gage 01160350 = 26.3 cfs
$Q_{WWTF,actual}$ = the actual average flow for the Keene WWTF for the past 5 years = 4.22 cfs

NHDES' Water Management Bureau (WMB) is working to develop a policy with flows other than 7Q10 and a phosphorus criterion other than 100 ug/L, as this instream concentration target would not be appropriate with the use of a higher flow, but that policy has not been finalized yet.

Although the 7Q10 calculation in Section 4.3 of the Fact Sheet resulted in a 7Q10 flow of 11.7 cfs, EPA acknowledges that the incorrect 7Q10 value of 11.4 cfs was used in the reasonable potential analysis presented in Fact Sheet Appendix B. A prior calculation had resulted in a 7Q10 value of 11.4 cfs. However, the period of record for the Ashuelot River gage at West Swanzey (01160350) was expanded to include data from the period of 2/21/2019 – 12/20/2019, which were excluded from the original calculation. The revised calculation resulted in a slightly higher 7Q10 value of 11.7 cfs.

As a result of this correction, the monthly average limit for aluminum has been revised from 108 to 109 µg/L in the Final Permit. There were no other changes in effluent limits associated with the revised 7Q10 value.

Comment 10

pH range

The Draft Permit includes an effluent pH range of 6.5 - 8.0 S.U. Keene has been operating since 1997 with an additional chemical feed system that adjusts effluent pH to achieve compliance with the low-level 6.5 S.U. effluent limitation. The receiving water pH has consistently been measured to have a pH well below that of the effluent, based on data collected in the upstream receiving water. See Appendix B. The implications of the varying pH levels may be causing an adverse effect by producing a pH "curtain wall" in the vicinity of Outfall Serial Number 001. Due to the drastic changes in water conditions, migration routes of native fish may be adversely impacted. In addition, the injection of caustic soda to the discharge pipe from Secondary Clarifier #1 for pH adjustment requires additional operational efforts by WWTF staff and approximately $140,000 annually (in FY20 dollars) in additional operational costs to meet the pH range.

The Draft Permit states in Part I.I.5 (page. 22 of the Draft Permit) that a change to the pH Range may be implemented if either of the following two cases are applicable and can be demonstrated to NHDES that the range should be modified: (1) due to naturally occurring conditions in the receiving water or (2) the naturally occurring receiving water pH would not be significantly changed by the Permittee's discharge. To determine whether Keene's discharge affects the naturally occurring pH in the receiving water, the City would need to conduct a pH demonstration study. This would entail developing proposed study parameters and NHDES approval prior to the initiation of the project. Accordingly, Keene respectfully requests the Final Permit include language indicating that the development of a site-specific study to evaluate if either of the written conditions apply to the City's discharge is an accepted approach. If the study determines either of the conditions apply, it is further requested that the Final Permit language include confirmation that EPA shall accept the results of the study.

Keene has collected data simulating the results of an unadjusted pH to the effluent. In 2018, Keene collected and performed Whole Effluent Toxicity (WET) tests on an unadjusted Secondary Clarifier #2 in parallel and concurrent with their typical testing requirements. There were no violations or failures in toxicity evaluated under the unadjusted pH. Refer to Appendix C for these parallel WET test results. The pH values recorded in the WET testing are notably high given the unadjusted condition, however, still did not fail a toxicity test. The pH analysis of the unadjusted data was conducted at a contract lab and therefore exceeds the 15-minute hold time of the samples given the currier travel time. The process that the lab takes to conduct the WET testing for pH includes warming the sample to test temperature and aerating to bring the dissolved oxygen (DO) into equilibrium. The process of warming and aerating a sample has major effects to a sample's pH level. Therefore, this lab analysis is not a representative indication of the level of pH at the time of collection. Keene requests that the receiving water pH data collected during 2018, attached to this document as Appendix B and mentioned in the winter ammonia comment, be considered.

NHDES provides reports for public viewing on the data collected in the Ashuelot River Watershed as part of VRAP. The intention of this program, as referenced in the 2007 VRAP report is *"to assist NHDES in evaluating water quality throughout the state"*. The annual reports published between 2007 and 2010 utilize collected data which is interpreted as they relate to the surface WQS; available data is also collected by VRAP and published through NHDES for the years 2011 through 2019. Sampling station locations are arranged by VRAP staff annually. In 2007, data was collected at a total of 13 sampling stations in the Ashuelot River Watershed. These stations are located both upstream and downstream of the Keene WWTF discharge point. It is notable that the majority of pH samples collected are below the NH surface WQS. As stated in the 2007 VRAP report, *"lower pH measurements are likely the result of natural conditions such as the soils, geology, or the presence of wetlands in the area"*; further, the report stated, *"it is important to note that the New Hampshire water quality standard for pH is fairly conservative, thus pH levels slightly below the standard are not necessarily harmful to aquatic life."* These statements are repeated verbatim in the 2008, 2009 and 2010 reports.

Data collected over the past 5 years through this program are presented in Table 3.1. Available data over the past 5 years is based on characteristics at 15 sampling stations. Data collected at sampling stations 16D-ASH and 16A-ASH are representative of conditions 40 feet upstream of the Keene WWTF and at the mouth of the South Branch, downstream of the Keene WWTF. VRAP reports and data from 2007-2010 are included as part of Appendix D.

A review of the available data from 2011 through 2019 confirmed that the majority of the data has consistently been below the surface WQS. Moreover, as partially depicted in Table 3.1, the sampling stations upstream of the Keene WWTF have lower pH measurements than those of the sampling stations downstream of the Keene WWTF.

Table 3.1: VRAP Receiving Water pH Data, 2015-2019

Sampling Station	Year	Samples Collected	pH Range	Acceptable Samples Not Meeting WQS
28-ASH	2015	4	5.56-6.18	4 (100%)
27-ASH	2015	4	5.74-6.14	4 (100%)

Table 3.1: VRAP Receiving Water pH Data, 2015-2019				
Sampling Station	**Year**	**Samples Collected**	**pH Range**	**Acceptable Samples Not Meeting WQS**
24A-ASH	2015	4	5.87-6.43	4 (100%)
23-ASH	2015	4	6.01-6.73	0 (0%)
20A-ASH	2015	4	6.38-6.55	3 (75%)
18-ASH	2015	4	6.36-6.68	1 (25%)
16D-ASH	2015	5	6.34-6.72	3 (60%)
16A-ASH	2015	5	6.26-6.56	3 (60%)
16-ASH	2015	5	6.41-6.65	2 (40%)
02B-SBA	2015	4	6.08-6.56	3 (75%)
02-SBA	2015	4	6.38-6.56	2 (50%)
15A-ASH	2015	5	6.44-6.72	1 (20%)
07-ASH	2015	5	6.63-6.72	0 (0%)
02-ASH	2015	4	5.69-7.38	1 (25%)
01-ASH	2015	5	6.78-7.23	0 (0%)
28-ASH	2016	5	5.67-6.04	5 (100%)
27-ASH	2016	5	4.90-6.14	5 (100%)
24A-ASH	2016	5	5.09-6.22	5 (100%)
23-ASH	2016	5	6.04-6.59	3 (60%)
20A-ASH	2016	5	6.20-6.46	5 (100%)
18-ASH	2016	5	6.30-6.57	5 (100%)
16D-ASH	2016	5	6.40-6.75	1 (20%)
16A-ASH	2016	5	6.30-6.90	1 (20%)
16-ASH	2016	5	6.39-6.74	1 (20%)
02B-SBA	2016	5	6.31-6.61	3 (60%)
02-SBA	2016	5	6.21-6.73	3 (60%)
15A-ASH	2016	5	6.23-6.99	3 (60%)
07-ASH	2016	5	6.32-6.79	2 (40%)
02-ASH	2016	4	7.01-7.51	0 (0%)
01-ASH	2016	5	6.32-7.19	1 (20%)
28-ASH	2017	5	4.90-5.56	5 (100%)
27-ASH	2017	4	4.98-5.64	4 (100%)
24A-ASH	2017	5	5.10-6.01	5 (100%)
23-ASH	2017	5	5.11-5.85	5 (100%)
20A-ASH	2017	5	5.12-5.78	5 (100%)
18-ASH	2017	5	5.08-5.99	5 (100%)
16D-ASH	2017	5	6.28-6.51	3 (60%)
16A-ASH	2017	5	6.35-6.61	3 (60%)
16-ASH	2017	5	6.37-6.64	3 (60%)
02B-SBA	2017	5	5.17-6.07	5 (100%)
02-SBA	2017	5	5.01-6.04	5 (100%)
15A-ASH	2017	5	6.11-6.55	4 (80%)

Table 3.1: VRAP Receiving Water pH Data, 2015-2019				
Sampling Station	Year	Samples Collected	pH Range	Acceptable Samples Not Meeting WQS
07-ASH	2017	5	5.22-6.43	5 (100%)
02-ASH	2017	4	6.27-7.01	2 (50%)
01-ASH	2017	5	5.93-6.71	3 (60%)
28-ASH	2018	5	5.26-5.71	5 (100%)
27-ASH	2018	5	5.48-5.82	5 (100%)
24A-ASH	2018	5	5.53-5.92	5 (100%)
23-ASH	2018	5	5.88-6.44	5 (100%)
20A-ASH	2018	5	6.12-6.56	4 (80%)
18-ASH	2018	5	5.97-6.35	5 (100%)
16D-ASH	2018	8	6.05-6.66	4 (50%)
16C-ASH	2018	3	6.41-6.85	1 (33%)
16A-ASH	2018	5	5.78-6.62	3 (60%)
16-ASH	2018	5	6.12-6.50	4 (80%)
02B-SBA	2018	5	5.73-6.48	5 (100%)
07U-SBA	2018	3	5.85-6.59	2 (67%)
08-SBA	2018	3	5.84-6.52	2 (67%)
02-SHK	2018	3	5.55-6.48	3 (100%)
02-SBA	2018	5	5.64-6.37	5 (100%)
15A-ASH	2018	5	5.79-6.71	4 (80%)
07-ASH	2018	5	5.68-6.46	5 (100%)
02-ASH	2018	4	6.58-7.44	0 (0%)
01-ASH	2018	5	6.04-7.04	1 (20%)
28-ASH	2019	5	5.65-5.71	5 (100%)
27-ASH	2019	5	5.56-5.81	5 (100%)
24A-ASH	2019	5	5.57-6.05	5 (100%)
23-ASH	2019	5	5.93-6.35	5 (100%)
20A-ASH	2019	5	5.83-6.12	5 (100%)
18-ASH	2019	5	5.94-6.15	5 (100%)
16D-ASH	2019	5	5.95-6.71	2 (40%)
16A-ASH	2019	5	6.01-6.75	1 (20%)
16-ASH	2019	5	6.00-6.71	1 (20%)
02B-SBA	2019	5	6.04-6.24	5 (100%)
02-SBA	2019	5	6.04-6.21	5 (100%)
15A-ASH	2019	5	6.14-6.35	5 (100%)
07-ASH	2019	5	6.12-6.33	5 (100%)
02-ASH	2019	4	6.78-7.28	0 (0%)
01-ASH	2019	5	6.31-6.71	2 (40%)

The percentages in the righthand column of Table 3.1 depict the percent of samples that did not meet the surface WQS of 6.5 to 8.0 S.U. Over the 5 years of data, the majority of the sampling stations yielded pH data below the surface WQS as representative by these percentages. **Keene**

respectfully requests that this data collected through this program and in collaboration with the State be considered as part of this request.

Response 10

As noted in the above comment, to allow for a pH demonstration and limit adjustment, the permittee must demonstrate to NHDES that either:

1. The range should be widened due to naturally occurring conditions in the receiving water; or
2. That the naturally occurring receiving water pH is not significantly altered by the Permittee's discharge.

Also as noted in the comment, State Permit Condition #5 on page 22 of the Draft Permit indicates that "the scope of any demonstration project must receive prior approval from NHDES-WD." NHDES utilizes conditions #1 and #2 to guide implementation of the pH requirements in its WQS. As described below, NHDES has determined that the permittee has not satisfied either condition and is therefore neither eligible to perform a pH study nor receive a pH adjustment at this time.

Regarding condition 1, the upstream pH values referenced by the commenter do not represent a "natural condition" because the receiving water is impaired for pH. At this time, NHDES is unable to precisely differentiate contributions of the natural and anthropogenic contributions to low pH. NHDES states that while there are signs of improvement there is ongoing anthropogenic acid deposition and that the long-term historical deposition has depleted the natural buffering capacity of soils and underlying geology. =

Regarding condition 2, the pH in the receiving water will be significantly altered by the Permittee's discharge. In general, as dilution decreases, the impact of effluent on river pH increases. Because Keene has a very low dilution factor, the discharge has a large impact. With regards to the WET test results, EPA refers the commenter to EPA's long-standing concept of "independent applicability" [4] regarding water quality criteria and biological assessments. One aspect of this policy is that water quality standards are to be independently applied. This means that any single assessment method (chemical criteria, toxicity testing, or biocriteria) can provide conclusive evidence that water quality standards are not attained. Therefore, a demonstration of water quality standards nonattainment using one assessment method does not necessarily require confirmation with a second method; nor can the failure of a second method to confirm impact, by itself, negate the results of the initial assessment.

Because biosurvey, chemical-specific, and toxicity testing methods have unique as well as overlapping attributes, sensitivities, and program applications, no single approach for detecting impact should be considered uniformly superior to any other approach. EPA recognizes that each method can provide valid and independently sufficient evidence of

[4] https://www.epa.gov/sites/production/files/2015-10/documents/final-policy-biological-memo.pdf

aquatic life use impairment, irrespective of any evidence, or lack of it, derived from the other two approaches. The failure of one method to confirm an impact identified by another method would not negate the results of the initial assessment. Therefore, appropriate action should be taken when any one of the three types of assessment determines that the standard is not attained. EPA has encouraged the States that administer the NPDES program to implement and integrate all three approaches into their water quality programs and apply them in combination or independently as site-specific conditions and assessment objectives dictate.

Therefore, even though the permit's WET limits have been met in the presence of pH values that were outside of the permitted range for pH, this alone does not provide a basis to request a less stringent pH for this permit, as another testing method may indicate the standard has not been attained.

Comment 11

TOTAL RECOVERABLE ALUMINUM

The City has evaluated the proposed effluent limit and associated compliance schedule outlined in the Draft Permit and has developed the following comments.

Numerical Limit and Compliance Schedule
The Draft Permit includes an Average Monthly (chronic) numerical effluent limitation of 108 µg/L for Total Recoverable Aluminum and a reporting requirement for the maximum day (acute) condition. The Draft Permit also includes a schedule of compliance for this limitation subject to modification depending on the status of NH's adoption of the revised aluminum criteria as well as EPA's approval of said criteria, along with several other considerations and mandated reporting requirements. The current permit does not include an effluent limitation for Total Recoverable Aluminum.

The compliance schedule set forth in the Draft Permit proposes a 3-year period to achieve the 108 µg/L. Once the scheduled period is commenced, the 108 µg/L limit will be enforced. There is limited understanding behind the effectiveness of the 108 µg/L permit limit and the benefits that the threshold imposes to the receiving water. There is longstanding and significant regulatory controversy on the validity of the aluminum chronic criterion of 87 µg/L. This criterion was published in 1988; Page 22 of the 1988 document states that the chronic criterion would have been 748 µg/L but was reduced to 87 µg /L to protect brook trout and striped bass. However, page 6 of the 1988 document states that 87.2 µg/L "did not kill any of the exposed organisms" (striped bass), and similar irregularities for the brook trout results.

Although the Draft Permit grants Keene the opportunity to modify the proposed limit if NHDES adopts the new criteria, the inclusion of the following language depicted below causes Keene immense concern:

"If new criteria are approved by EPA before the effective date of the final aluminum effluent limit, the Permittee may apply for a permit modification, pursuant to 40 C.F.R 122.62(a)(3), to revise the time to meet the final aluminum effluent limit and/or for revisions to the permit based on whether there is reasonable potential for the facility's aluminum discharge to cause or contribute to a violation of the newly approved aluminum criteria."

Keene has calculated potential aluminum criteria scenarios utilizing the EPA aluminum criteria calculator available for public use. Keene has been sampling DOC, pH, and hardness levels simultaneously as part of this analysis. See Appendix E for sampling data. This data represents samples collected for both the Ashuelot River upstream (samples labeled as ASHUP*DATE*) and the secondary effluent (samples labeled as SEC*DATE*).

Based on these calculations, it appears that Keene would not have the reasonable potential to cause or contribute to an exceedance of WQS for aluminum. The data used and criteria calculated is presented in Table 4.1 below:

Tale 4.1: EPA 2018 Aluminum Criteria Keene Estimate	
Parameter	**Value**
DOC (mg/L)	4.10
Hardness (mg/L)	29.79
pH (S.U.)	6.43
Aluminum (acute criteria) (µg/L)	680
Aluminum (chronic criteria) (µg/L)	320

To impose a new limit based on superseded science would be an error and would prevent Keene the ability to take advantage of the newly developed and more appropriate criteria. The new EPA criteria accurately characterizes the bioavailability of aluminum by accounting for site specific data for parameters that directly impact the amount of aluminum that is bioavailable. pH, DOC and hardness each affect the toxicity level of aluminum in the receiving water. The current criterion does not consider these parameters, and therefore it is questioned if the existing criterion accurately depicts how much of the constituent is bioavailable. A review of the City's data indicates that Keene would be in compliance with the criteria calculated using the new EPA standard. Keene should be able to operate under a limit that is backed by the latest information in science and that is technically defensible in preventing any exceedances in WQS. Keene feels strongly that the limit set forth in the Draft Permit is inappropriate and unfair given the availability to provide a limit that is supported by the latest science, and the advancement of the requirements of the Draft Permit as is will not lead to any better environmental outcomes. Keene intends to continue to dispute the validity of the Draft Permit methodology for aluminum, if requested changes are not reflected in the Final Permit.

<u>Keene is concerned that EPA is issuing a new aluminum limit given the recent adoption of new national guidance and the intention of NHDES to adopt the criteria.</u> The criteria used to develop the 108 µg/L is an obsolete standard and should be delayed until such time as NHDES and EPA complete the process to adopt and approve the new WQS. If a new effluent limitation is

anticipated to be re-calculated within the period of the Draft Permit, then it is inappropriate to impose a brand-new effluent limitation using an obsolete method. Regardless of the use of dated methodology to determine the permit limit, the proposed 108 μg /L does not account for site-specific data on acid soluble and total recoverable aluminum. As described in the Draft Permit, the fraction of acid soluble to total recoverable was assumed to be 1.0. Keene respectfully requests that the Final Permit include language under a special condition that Keene has the option to submit a request to pursue a preliminary study evaluating the fraction of acid soluble aluminum to total recoverable aluminum. If Keene pursues this type of a study, additional language is requested to be in the Final Permit that the results of the study would be accepted and that a permit modification may be made to reflect site-specific limits.

Given the term of the Draft Permit, the anticipated timely adoption of a new criterion, and to avoid relying on an obsolete and thus arbitrary and capricious standard, Keene respectfully requests that the aluminum limit be removed from the Final Permit.

Response 11

As explained in the Fact Sheet, although EPA has promulgated new aluminum criteria recommendations, the State of NH has yet to revise State WQS to incorporate these criteria recommendations. An NPDES permit must ensure compliance with the state WQS currently in effect, not those which may be implemented in the future. *See* 40 C.F.R. §§ 122.4(d), 122.44(d). The Draft Permit established a limit for effluent aluminum because, as shown in Appendix B of the Fact Sheet, EPA determined that there is reasonable potential that the effluent levels could cause or contribute to a violation of New Hampshire's current aluminum criteria, *i.e.,* the WQS with which the permit must ensure compliance

EPA appreciates the instream sampling that the City of Keene has conducted which may be used to support a revised aluminum limit, if necessary, if and when New Hampshire adopts new aluminum criteria. These data use an approach which is based on EPA's new aluminum criteria recommendations, which have yet to be incorporated into the State WQS. If New Hampshire updates its WQS and EPA finds that there is no reasonable potential to violate those new WQS, the data may be used in the future to support an alternative limit or to revert to a monitor-only requirement

Because the aluminum limit is a new limit in the Final Permit, it includes a three-year compliance period. This means that, as noted in Permit Section I.G.2, the limit does not take effect until three years after the effective date of the permit. As also described in Section I.G.2, the permittee may apply to further extend the effective date and/or modify the limit under certain circumstances.

As an interim permit requirement during this three-year period, the permittee is expected to optimize its current treatment system with respect to aluminium, *i.e.* do the best it can within the treatment plant's current capability. This optimization does need to consider the eventual permit limit, which is scheduled to go into effect after three years unless the permittee applies for and receives a modification under qualifying circumstances.

DES would consider a study to evaluate the fraction of acid soluble aluminum to total recoverable aluminum. The scope needs to be reviewed and approved by the DES Watershed Management Bureau. If the result were also approved by DES, EPA would consider a permit modification to increase the limit based on this new information.

However, it is important to note that the new EPA aluminum criteria is for total recoverable aluminum. The DOC, pH, and hardness calculations account for the true toxicity of the acid soluble fraction on test species. Therefore, once the new criteria are in place in the NH WQS, any acid-soluble specific work becomes irrelevant. Therefore, it may not be worth Keene's resources to perform this study.

Comment 12

TOTAL RECOVERABLE ALUMINUM

Reporting Requirements

Keene also respectfully requests removal of the aluminum reporting requirements specific to developing an evaluation of alternative modes of operation at the wastewater treatment facility in order to reduce the effluent levels of aluminum from the Final Permit (Refer to page 17 of Draft Permit). Licensed operators are understood to be responsible for achieving mandated effluent limitations in accordance with the NPDES permit. The manner in which this happens is understood to be at the discretion of these professionals and not subject to EPA scrutiny or oversight. Conducting such evaluations as proposed in the Draft Permit reporting requirements can present a financial burden on Keene. The process of conducting these evaluations would entail hiring a consultant to evaluate the current dynamic of the treatment process and conducting research to determine alternative approaches that may be applicable. The system installed for Keene is an interconnected process, and the adjustments of one chemical addition to treat one parameter to meet effluent limitations can adversely affect the efficacy in meeting another parameter's effluent limitations. Due to the nature of the system, evaluating entirely new and formal approaches to meeting the aluminum limit can be both timely and costly, and thus must be reserved for situations in which WQS are unmet.

Response 12

The Permittee is required to document the measures it will take to achieve the permit limit, including identifying influent sources of aluminum to the WWTP and considering treatment options. These options can include pilot scale testing or alternatives that have been implemented at other treatment plants, and therefore would not necessarily require full-scale treatment modifications and associated expenses.

The information reported under this requirement serves an important purpose, *i.e.*, compliance with permit requirements. EPA has broad authority under the CWA and NPDES regulations to prescribe the collection of data and reporting requirements in NPDES Permits. *See* CWA § 308(a)(A), 33 U.S.C. § 1318(a)(A) (specifying that permittees must provide records, reports, and other information EPA reasonably requires); CWA § 402(a)(2), 33 U.S.C. § 1342(a)(2) (requiring permittees to provide data and other information EPA deems appropriate); 40 CFR § 122.41(h) (permittees shall furnish "any information" needed to determine permit compliance); 40 CFR § 122.44(i) (permittees must supply monitoring data and other measurements as appropriate); *see also, e.g., In re City of Moscow*, 10 E.A.D. 135, 170-71 (EAB 2001) (holding that EPA has "broad authority" to impose information-gathering requirements on permittees); *In re Town of Ashland Wastewater Treatment Facility,* 9 E.A.D. 661, 671-72 (EAB 2001) (holding that CWA confers "broad authority" on permit issuers to require monitoring and information from permittees).

Comment 13

TOTAL RECOVERABLE ALUMINUM

Alternative Low Flow on Total Recoverable Aluminum Limit Development

Section 2.0 of this report outlines comments requesting the use of an alternative low flow in place of the 7Q10. The 7Q10 calculated for the facility and identified in the Fact Sheet of the Draft Permit is used to establish the reasonable potential for a constituent to cause or contribute to an exceedance of WQS, as well as to developing permit effluent limits for constituents. If the request for the use of an alternative low flow is granted through the Final Permit, Keene respectfully requests that the Reasonable Potential Analysis Table in Appendix B of the Draft Permit reflect this modification, and that the pollutant effluent limits be adjusted.

Response 13

See the Response 9, which denies the request to use an alternate low flow to calculate the aluminum limit.

Comment 14

TOTAL RECOVERABLE COPPER

The Draft Permit includes average monthly (chronic) and maximum daily (acute) effluent limitations of 5.9 µg/L and 7.9 µg/L, respectively, for total recoverable copper. Based on the permit review period comprised of 5 years of data, exceedances to copper effluent limitations occurred on two occasions. The data evaluated within the permit review period is assessed against the effluent limits that the City has been operating under. Appendix A indicates effluent limits as 5.9 µg/L and 7.9 µg/L for the review period. Keene would like to clarify that the modified permit effluent limits for copper that the City has been operating under were carried over from the 1994 permit**,** as 6.2 µg/L and 8.2 µg/L**.** See Appendix F attached to this document. The 1994 permit limits carried forward for copper, zinc, and lead are as follows: 6.2 µg/L chronic and 8.2 µg/L acute, 55.7 µg/L chronic and 61.5 µg/L acute, and 0.92 µg/L chronic and 23.8 µg/L acute. The violations determined for total copper were evaluated against incorrect effluent limitations as they are listed as 5.9 and 7.9 µg/L. Keene requests that this clarification be reflected in the Final Permit and that EPA acknowledge that the 1994 permit effluent limits of

6.2 µg/L and 8.2 µg/L are appropriate; these requests are made notwithstanding the results of any site specific studies and alternative low flow discussed in this section below.

The criteria were developed using the water quality standards equation dependent on the hardness (Env. Wq. 1703). The Reasonable Potential Analysis Table is outlined in Appendix B and identifies the acute and chronic limits for copper. Although reasonable potential no longer applies to copper since limits have previously been enforced, Keene re-calculated limits based on the new criteria utilizing a hardness of 36.7 mg/L.

The Draft Permit states that limits may be developed utilizing a rearrangement of the mass balance equation and the use of the criterion in place of the downstream concentration. Keene reviewed EPA's approach to calculating the limits using the equation as understood below:

$$\mathrm{Limit} = \frac{(Q_d * \mathrm{Criteria} * 0.9 - Q_s C_s)}{Q_e}$$

Solving for this equation using the values given in the Reasonable Potential Analysis Table, an acute limit would be 10.91 µg/L and a chronic limit would be 8.01 µg/L. These limits are appropriately adjusted based on new data collected during the review period which established a higher hardness concentration. 40 CFR § 122.44(l)(2)(i)(B)(1); *Great Basin Mine Watch v. State of Nevada*, No. 43943, 2006 WL 1668890, at *3 (Nev. Apr. 19, 2006). Recalculated limits accounting for current effluent and receiving water conditions is a proper consideration in establishing permit limits.

Although the current approach is hardness-dependent, the toxicity of copper is characterized by other parameters that are not considered by this approach. Keene has never failed a toxicity test even when operating under less stringent effluent copper concentration limits. Specifically, Keene has operated under a 20 µg/L copper concentration administrative testing, and never failed a toxicity test. In fact, due to the testing performance, EPA approved a reduction of WET testing frequency from four times annually to once annually.

There are additional studies that incorporate more data to characterize copper concentrations. NHDES water quality standards regulations allow for the use of approved methods including the Water Effect Ratio (WER) and the Biotic Ligand Model (BLM) to characterize copper concentrations based on site-specific conditions (Env-Wq 1703.22 (d)). These are two options that NHDES specifies in their regulations, and therefore the opportunity is made available if Keene decides to advance with a site-specific approach. Accordingly, Keene respectfully requests that language be included as a special condition in the Final Permit indicating that Keene may submit a permit modification request to apply for site-specific effluent copper limits, including the WER and the BLM. If Keene decided to move forward with a site-specific approach, Keene also respectfully requests that additional language be included in the Final Permit indicating that the results of a site-specific approach will be accepted and a permit modification may be made to reflect revised effluent limits. Keene applied the BLM model previously in 2004 and the results confirmed that the corresponding criteria reflected in the state water quality standards are excessively conservative. Keene commented on the 2007 Draft Permit's proposed copper limits on a similar basis of toxicity and bioavailability stating that the limit: "…fails to take into account the fact that copper in municipal wastewater treatment facility effluents is not toxic…. Studies overwhelmingly support the conclusion that copper in biologically treated effluents exists in organo-complexes and is not bio available." Keene reiterates these arguments.

Response 14

On September 28, 2007, the City of Keene filed a petition for review of the 2007 Final Permit with the Environmental Appeals Board ("Board"), pursuant to EPA permitting regulations at 40 C.F.R. § 124.19(a). In its appeal, the City challenged the new, more stringent effluent limitations set forth in the Permit for the Keene WWTP discharges of total phosphorus, measured on an average monthly basis, and total recoverable copper, lead, and zinc, measured on maximum daily and average monthly bases. On November 20, 2007, the Region filed a notice with the Board withdrawing the disputed metals limits pursuant to 40 C.F.R. § 124.19(d). The Region reported that it intended to prepare new draft permit conditions for the three metals to replace the withdrawn provisions and would release the new conditions for public notice and comment at a future time. EPA's withdrawal of the permit conditions did not reflect agreement at the time with the City's alternative proposed limits; only that the withdrawal of the contested permit conditions would be appropriate to ensure that the record fully supported and adequately explained the permit requirements. Due to resource limitations and lengthy expired permits backlog, permit modification proceedings were not commenced.

The total copper Draft Permit limits of 5.9 µg/L and 7.9 µg/L were carried over from the proposed Final Permit that was issued in 2007. However, since these limits were appealed and were never put into effect, the limits that were previously established in the 1994 Permit of 6.2 µg/L and 8.2 µg/L are still in effect. As described in Part 5.1.10.2 of the Fact Sheet, for any metal with an existing limit in the 2007 Permit, a reasonable potential determination was not carried out again, so the table in Appendix B of the Fact Sheet indicated "N/A" for reasonable potential.

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 requirements at CWA §§ 402(o) and 303(d)(4). 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 and inefficient cycle of applying and removing pollutant controls with each permit reissuance, to the detriment of water quality. 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.

In this case, for copper, the same mass balance equation that is used to determine whether there is reasonable potential to cause or contribute to an excursion of water quality standards for other parameters was used to determine if a more stringent copper limit would be required to meet WQS under current conditions. In Appendix B of the Fact Sheet, EPA mistakenly used the limits of 5.9 µg/L and 7.9 µg/L in this calculation. Using the higher limits of 6.2 µg/L and 8.2 µg/L, the result is that these limits should be carried forward and that more stringent limits are not necessary. Therefore, the limits of 6.2 µg/L and 8.2 µg/L are carried forward in the Final Permit. Even if these limits were to be made less stringent based on an analysis of the data on the record, they would still need to satisfy applicable anti-backsliding requirements at CWA §§ 402(o) and 303(d)(4), including the requirement that the discharge not cause a violation of water quality standards.

EPA also cited the incorrect limits of 5.9 µg/L and 7.9 µg/L in the DMR summary of Fact Sheet Appendix A and noted two violations of these limits during the review period. Even if the limits of 6.2 µg/L and 8.2 µg/L had been used in Appendix A, there still would have been two violations (one monthly average violation and one daily maximum violation) during the review period.

Keene may submit a study plan for site specific-copper criteria to NHDES for review, in accordance with Env-Wq 1703.22(d). If the plan and results are approved by NHDES, the revised criteria may be used to modify the permit limits. NHDES interprets Env-Wq 1703.22(d) for WER or BLM dependent criteria in a manner similar to Env-Wq 1703.22(i) for hardness dependent metal criteria. That is, once the WER, BLM or hardness dependent criteria is determined for a certain waterbody (or portion thereof), it automatically becomes the enforceable ambient criteria for that waterbody (or portion thereof) and can be used for computing effluent limits in WWTP discharge permits. There is no need to first formally adopt the criteria in the regulations. However, since conditions in the river and WWTP can change over time, all hardness, WER or BLM ambient criteria should be re-evaluated approximately every five years when NPDES permits are reissued. However, EPA notes that any potential change in the permit limit based on site-specific copper criteria would also be subject to anti-backsliding requirements at CWA §§ 402(o) and 303(d)(4).

EPA does not believe that it would be reasonable to include a special permit condition accepting a future permit modification request, without first having the opportunity to evaluate that request. To do otherwise would be conjectural. EPA's mind is open and it has not prejudged the merits of a future request, if any.

Comment 15

Alternative Low Flow on Total Recoverable Copper Limit Development

Section 2.0 of this report outlines comments requesting the use of an alternative low flow in place of the 7Q10. The 7Q10 calculated for the facility and identified in the Fact Sheet of the Draft Permit is used to establish the reasonable potential for a constituent to cause or contribute to an exceedance of WQS, as well as to developing permit effluent limits for constituents. If the request for the use of an alternative low flow is granted through the Final Permit, Keene respectfully requests that the Reasonable Potential Analysis Table in Appendix B of the Draft Permit reflect this modification, and that the pollutant effluent limits be adjusted.

Response 15

See Response 9, which denies the request to use an alternate low flow to calculate the copper limit.

Comment 16

TOTAL PHOSPHORUS

Alternative Low Flow on Phosphorus Numerical Limit Development

Section 2.0 of this report outlines comments requesting the use of an alternative low flow in place of the 7Q10. The 7Q10 calculated for the facility and identified in the Fact Sheet of the Draft Permit is used to establish the reasonable potential for a constituent to cause or contribute to an exceedance of WQS, as well as to developing permit effluent limits for constituents. NHDES has discussed the potential benefits of using alternative low flows in establishing nutrient effluent limits, as depicted in Section 2.0. If the request for the use of an alternative low flow is granted through the Final Permit, Keene respectfully requests that the Reasonable Potential Analysis Table in Appendix B of the Draft Permit reflect this modification, and that the pollutant effluent limits be adjusted.

Further, NHDES regulations allow mixing zone studies dependent on department approval. In conjunction with the request for an alternative low flow, Keene respectfully requests that language be included as a special condition of the Final Permit that allows Keene the option to conduct a CORMIX Mixing Zone model. If Keene decides to move forward with CORMIX modeling, it is requested that Keene be granted the ability to utilize alternative low flow conditions as described above. Further, additional language is requested to be included in the Final Permit indicating that the results of the study would be accepted, and a permit modification may be made to reflect the results.

Response 16

See the Response 9, which denied the request to use an alternate low flow to calculate the phosphorus limit.

CORMIX modeling may not be used to calculate an alternative low flow. Per Env-Wq 1705.02(d), "For non-tidal rivers and streams, permit limits for all aquatic life criteria and human health criteria for non-carcinogens shall be based on the 7Q10 flow."

Comment 17

Numerical Effluent Limit

The Draft Permit includes Average Monthly (chronic) effluent limitations of 0.18 mg/L and 1.0 mg/L, respectively, for the periods April 1 through October 31 and November 1 through March 31. The acute condition is report only. These are based on the NHDES narrative WQS for Class B waters which, including the 10% held in reserve for assimilative capacity, targets an instream concentration of 0.09 mg/L based on 7Q10 flow conditions. The 2007 permit enforced a summer average monthly effluent limit of 0.20 mg/L. As confirmed in Appendix A of the Draft Permit, Keene has been successful in complying with both seasonal effluent limits with no violations during the permit review period. Further, ortho-phosphorus monitoring confirmed that minimal dissolved phosphorus was detected during the review period.

The criteria is based on nationally recommended values since there is no site-specific criteria adopted by NHDES. However, the nationally recommended Gold Book criteria does not justify receiving water conditions and characterize the accepted amount of the constituent that would be protective of the receiving waters.

NHDES provides reports for public viewing on the data collected in the Ashuelot River Watershed as part of VRAP. The intention of this program, as referenced in the 2007 VRAP report is *"to assist NHDES in evaluating water quality throughout the state"*. The annual reports published between 2007 and 2010 utilize collected data which is interpreted as they relate to the surface WQS; available data is also collected by VRAP and published through NHDES for the years 2011 through 2019. Sampling station locations are arranged by VRAP staff annually. In 2007, data was collected at a total of 10 sampling stations in the Ashuelot River Watershed. These stations are located both upstream and downstream of the Keene WWTF discharge point.

Although NHDES does not provide a numeric WQS for total phosphorus, the NHDES "level of concern" is 0.05 mg/L. Based on this threshold, it is noted in the 2007 VRAP, that the majority of the samples *"had total phosphorus levels that were always below the NHDES "level of concern""*. This statement also applies to the data collected as part of the 2008, 2009 and 2010 reports. Data collected at sampling stations 16D-ASH and 16A-ASH are representative of conditions 40 feet upstream of the Keene WWTF and at the mouth of the South Branch, downstream of the Keene WWTF. Presented in Appendix D are the VRAP annual reports from 2007-2010, as well as an analysis of the total phosphorus data collected from 2015-2019. The data confirms that the receiving water conditions consistently remain below the NH "level of concern", with only 5 samples of data exceeding the "level of concern" over 5 years. [*FN*: It is the City's understanding that receiving water total phosphorus sampling conducted in support of the VRAP was discontinued in 2020 because the in-stream phosphorus concentrations are consistently below WQS concentrations.]

Based on Keene's success in meeting effluent limitations and the levels of total phosphorus in the receiving water, Keene believes that it would be appropriate to maintain the existing effluent limitations. For these reasons, Keene respectfully requests that the summer average monthly effluent limit remain 0.20 mg/L; notwithstanding, and subject to, the results of any site-specific studies and alternative low flow discussed in this Section 6.1.

Response 17

EPA appreciates the City's efforts to meet the permit's effluent phosphorus limits. However, the instream level of a pollutant is not the sole criterion that EPA uses to determine whether there is a reasonable potential to violate instream WQS or to establish a protective WQBEL.The monthly average summer limit has been changed from 0.20 to 0.18 mg/L due to the State of NH's assimilative capacity requirement and the slightly lower dilution factor.

As noted in Section 2.2.24 of the Fact Sheet:

> 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.44(d)(1)(i).

Because there was an existing phosphorus limit in place from the 2007 Permit, EPA considered whether that limit would cause or contribute to a violation of water quality standards. EPA used a mass balance equation presented in Appendix B of the Fact Sheet to project the concentration downstream of the discharge assuming effluent concentration equal to the 2007 effluent limit of 0.20 mg/L. This equation accounted for effluent and upstream levels of phosphorus as well as dilution available to the discharge. As noted in the Fact Sheet, samples taken 40 feet upstream of the Keene WWTP (Station 16D-ASH) for phosphorus yielded the following results:[5]

[5] https://www.des.nh.gov/water/rivers-and-lakes/river-and-lake-monitoring

Instream Total Phosphorus Data –Ashuelot River (Station 16D)

Year	2015	2016	2017	2018
Total Phosphorus, µg/L	18, 19, 27	15, 14, 21	12, 13	26, 19, 22, 19, 23

The effluent limit would be the more stringent of either (1) the existing limit or (2) the calculated effluent concentration (C_d) allowable to meet WQS based on current conditions. For phosphorus, EPA made a technical determination that a seasonal effluent limit of 0.18 mg/L (vs. the prior limit of 0.20 mg/L) was necessary to meet WQS. This reduction was not based on a change in EPA's criterion, but rather the NHDES requirement to reserve 10% of the receiving water assimilative capacity, as noted in the comment.

Comment 18

Sampling Requirements

The Draft Permit proposes that Keene sample and collect data for ambient monitoring of total phosphorus to provide EPA with data for future use in their total phosphorus evaluation. Keene remains responsible for compliance with enforced effluent limitations to reduce potential to impair the receiving water. Keene does not believe that it would be appropriate to be required to sample and analyze data of the receiving water to confirm if EPA's enforced limits are protective. Monitoring of receiving water conditions is annually completed by state or volunteer organizations, such as the Volunteer River Assessment Program as discussed on page 30 of the Fact Sheet. Additional sampling requires operational efforts and monetary contributions from Keene. **For these reasons, the City respectfully requests that the monitoring requirement for ambient total phosphorus data be removed from the Final Permit.**

Response 18

The Final Permit maintains this monitoring requirement because it serves an important purpose and because it ensures monitoring will continue even if the Volunteer River Assessment Program (VRAP) were to stop its monitoring activities during the permit term. The purpose of the ambient monitoring requirement for phosphorus is to track upstream conditions over the life of the permit. These data will be used in the next permit reissuance to ensure that appropriate limits are in place to protect water quality standards.

EPA has broad authority under the CWA and NPDES regulations to prescribe the collection of data and reporting requirements in NPDES Permits, including instream monitoring of a discharge's impact. *See* CWA § 308(a)(A), 33 U.S.C. § 1318(a)(A) (specifying that permittees must provide records, reports, and other information EPA reasonably requires); CWA § 402(a)(2), 33 U.S.C. § 1342(a)(2) (requiring permittees to provide data and other information EPA deems appropriate); 40 CFR § 122.41(h) (permittees shall furnish "any information" needed to determine permit compliance); 40 CFR § 122.44(i) (permittees must supply monitoring data and other measurements as appropriate); *see also, e.g., In re City of Moscow*, 10 E.A.D. 135, 170-71 (EAB 2001) (holding that EPA has "broad authority" to impose information-gathering requirements on permittees); *In re Town of Ashland Wastewater Treatment Facility,* 9 E.A.D. 661, 671-72 (EAB 2001) (holding that CWA confers "broad authority" on permit issuers to require monitoring and information from permittees).

The ambient phosphorus monitoring is required for seven (7) months every other year and is not believed to be burdensome, based on EPA's experience with other permits. Additionally, any future, ambient phosphorus monitoring that is conducted by VRAP can be used to satisfy the permit's monitoring requirement. VRAP sampling follows appropriate QA/QC procedures and is therefore acceptable for the purposes of this permit. VRAP coordinates regular water quality sampling by volunteers. These citizen scientists assist NHDES in evaluating river water quality throughout the state. To ensure the data collected are of the highest quality, volunteers use forms to track calibration, confirm sampling process steps, weather conditions, and other data aspects.

ADDITIONAL DRAFT PERMIT COMMENTS

The City evaluated the Draft Permit requirements for parameters that do not constitute numerical effluent limits. Based on the evaluation, the City has developed several comments in response to the requirement changes set forth in the Draft Permit.

Comment 19

Technical Based Industrial Limits

Keene has previously conducted a study to develop specific effluent local limits for Industrial Users compliant with the requirements set forth in the Administrative Order, Docket No. 04-47. The comments were completed and submitted to EPA for review and approval in 2015. There was no further correspondence of comments or questions following the original submission. A re-evaluation of local limits should not be reiterated in this permit. The City is aware that the main contributors to the collection system are residential, with a total of 98% of users as residential. See Appendix G for significant industrial users list attached to this document. Further, data shows that the number of industrial users classified in the City have not greatly increased from 2015 to 2020. Given that the City has already completed such an assessment and that the number of users has primarily remained the same, a reassessment would not be appropriate. **Accordingly, Keene respectfully requests that the Reassessment of Technically Based Industrial Discharge Limits (Attachment C) be removed from the Final Permit.**

Response 19

EPA acknowledges that the City of Keene submitted a local limits review for its Industrial Users following the issuance of the 2007 Permit. On December 18, 2020, EPA placed on a 30-day public notice its intent to approve the City of Keene' s proposed modifications as part of its approved industrial pretreatment program (IPP). The purpose of the public notice was to provide interested parties an opportunity to comment on the proposed modifications as required by 40 C.F.R. 403.18. As there were no comments submitted on the proposed modifications to Keene's IPP, EPA approved the modifications to the IPP by letter to Eric Swope, industrial pretreatment coordinator, on January 20, 2021.

The local limit reassessment requirement of the Draft Permit only requires that the City complete Attachment C of the permit and does not require a full evaluation of the local limits that the City had previously completed and which have been reflected in the modifications to Keene's IPP noted above. This is required due to the time that has passed since the City's last submittal and the City acknowledging that there have been some changes to the list of Industrial Users. This requirement applies to all reissued permits that have an approved IPP.

Comment 20

Dissolved Organic Carbon (DOC)
Keene respectfully requests clarification on Section 13 (Page 8, Draft Permit), which requires the addition of testing DOC as part of the Chemical Analysis for WET testing. Is data collection for DOC required for solely the initial effluent sample or for all three effluent samples?

In addition, the Draft Permit does not outline the minimum level for DOC in Attachments A and B for chronic and acute toxicity in the Part VI. Chemical Analysis table. **Keene requests that clarification on the minimum level be provided, and that language be included in the Final Permit's Attachment A and B identifying DOC.**

Response 20

Monitoring for DOC in the ambient (receiving water) is only required one time for each chronic and acute WET test. These data will be used in conjunction with pH and hardness data to assess whether Keene's effluent has the reasonable potential to violate the revised aluminum criteria which are expected to be adopted by NHDES during the permit term.

As noted in footnote 13 on Page 8 of the Permit, DOC monitoring is not required by either the chronic or acute WET test protocol. Attachments A and B are standard protocols for WET testing in all permits that will not be revised. Please refer to the following excerpt from Footnote 2 on Page 6 of the Final Permit, regarding how to determine the minimum level (ML) for a particular parameter:

> 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), whichever is higher. Minimum levels may be obtained in several 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.

If the commenter has additional questions on this provision, which in EPA's experience have found to be reasonably clear and not a source of confusion in the regulated community, it should contact the permit writer for any necessary clarification on how it is to be implemented.

Comment 21

Alternate Dilution Water

Keene contracts out to a laboratory to conduct the WET Testing and has done so for years. They have been using laboratory soft water as the dilution water as part of the WET Testing procedure. Keene was previously granted the ability to use an alternate dilution water as EPA approved a request dated January 23, 1996, from the City. **Keene respectfully requests that the existing practices for utilizing an alternate dilution water be written into the Final Permit.**

Response 21

As noted in an email from Janet Deshaies of EPA to Mary Ley of the City of Keene on July 30, 2020, there is not enough information in the most recent toxicity test reports to support the continued use of an alternative dilution water (ADW) at this time.

The use of ADW is authorized in two conditions under EPA's WET Alternative Dilution Water (ADW) Guidance policy: (1) where repeating a test due to toxicity in the site dilution water requires an **immediate** decision for ADW use be made by the permittee and toxicity testing laboratory; and (2) where two of the most recent documented incidents of unacceptable site dilution water toxicity require ADW use in future WET testing.

Because the current WET test reports indicate that the receiving water meets the criteria listed in the WET protocols, the City must submit a new request to use ADW on an ongoing basis with evidence that demonstrates the receiving water is toxic or unreliable in accordance with our regional guidance. See Part IV of the WET testing protocols in Permit Attachments A and B for guidance on how to request the use of ADW.

COLLECTION SYSTEM

Comment 22

Maintenance Staff

The Draft Permit includes the following information specific to Operation and Maintenance of the Sewer System:

"The Permittee and co-Permittees shall each 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."

This statement is vague and there is no regulatory authority cited for this requirement. The phrase "adequate staff" is unclear as there is no determination set forth that quantifies adequacy for staffing. **Without a defined regulatory authority as part of this requirement, Keene respectfully requests that Part C.1. requirement be removed from the Final Permit.**

Response 22

Although there is no specific definition of "adequate staff" in the permit, "adequate" and "staff" are both words in common usage, and they are sufficiently clear to apprise a person of reasonable intelligence of their obligations under the terms of the permit. The condition sets out a clear standard ("adequate") and a clear endpoint ("compliance with the permit"). EPA expects that Keene and its co-Permittees will maintain sufficient personnel to "to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit." Permit Part I.C. This includes compliance with the Standard Conditions, Part II.B.1 of the Permit:

> 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…

The specific details of maintaining "adequate staff" are left to the discretion of the City of Keene and its co-Permittees, as they are most familiar with the facility, its staffing, and other pertinent factors. EPA notes that the permit requirement does not prohibit staff from filling multiple roles.

As for EPA's legal authority to require "adequate staffing", the requirement is consistent with EPA's statutory authority to include in NPDES permits any conditions "[EPA] deems appropriate" to "assure compliance" with all applicable Act requirements. CWA § 402(a)(2) (33 U.S.C. § 1342(a)(2)). Generally, EPA has the authority to impose conditions in an NPDES permit where the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. 40 C.F.R. § 122.44(k). If not for adequate staff, the WWTP would not be able to, among other things, "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." 40 C.F.R. § 122.41(e). Thus, it is necessary to ensure compliance with the Act and its regulations.

This requirement shall remain in the Final Permit. If the permittee has continuing questions over interpretation of the permit, or if questions arise during the permit term, it may contact the permit writer for clarification.

Comment 23

Operation and Maintenance Plan
Section 5 of the Draft Permit (Pages 11-12) outlines requirements of the permittee and co-permittees regarding the Collection System Operation and Maintenance Plan. The annual summary reports and O&M Plan are required to be submitted to EPA and NHDES based on scheduled time frames as depicted in the Draft Permit. There is no authority cited for the

submission of these items. This section does not consider authority of approval of the documents. Licensed operators and operations staff are understood to be responsible for achieving mandated effluent limitations in accordance with the NPDES permit. Therefore, operators are bound by effluent outcomes, not by the process to achieve that performance. The manner in which this happens is understood to be at the discretion of these professionals and not subject to EPA or NHDES scrutiny or oversight. **Without a defined regulatory authority as part of this requirement, Keene respectfully requests that the requirements set forth under Section 5 of the Draft Permit, Collection System Operation and Maintenance Plan be removed from the Final Permit.**

Response 23

NPDES Permit conditions are not solely limited to effluent limits and standard conditions in Part II. EPA Region 1 has included mapping as a standard requirement in NPDES Permits issued in New Hampshire since 2007. EPA has broad authority under the CWA and NPDES regulations to prescribe the collection of data and reporting requirements in NPDES Permits. *See* CWA § 308(a)(A), 33 U.S.C. § 1318(a)(A) (specifying that permittees must provide records, reports, and other information EPA reasonably requires); CWA § 402(a)(2), 33 U.S.C. § 1342(a)(2) (requiring permittees to provide data and other information EPA deems appropriate); 40 CFR § 122.41(h) (permittees shall furnish "any information" needed to determine permit compliance); 40 CFR § 122.44(i) (permittees must supply monitoring data and other measurements as appropriate); *see also*, *e.g.*, *In re City of Moscow*, 10 E.A.D. 135, 170-71 (EAB 2001) (holding that EPA has "broad authority" to impose information-gathering requirements on permittees); *In re Town of Ashland Wastewater Treatment Facility*, 9 E.A.D. 661, 671-72 (EAB 2001) (holding that CWA confers "broad authority" on permit issuers to require monitoring and information from permittees). The Collection System O&M Plan requirements in Part I.C.5 readily fall within the bounds of these broad provisions. The commenter should be aware that the Board has upheld collection system and mapping provisions in *In re Town of Concord Dep't of Pub. Works*, 16 E.A.D. 514, 543-45 (EAB 2014).

Additionally, EPA has regulatory authority to require that the Permittee properly operate and maintain the treatment plant pursuant to 40 C.F.R. § 122.41(e). Furthermore, 40 C.F.R. § 122.41(h) allows EPA to require permittees to furnish "any information" needed to determine permit compliance, and EPA believes that the mapping, operation and maintenance planning, and annual reporting requirements fall within the bounds of these provisions. The reported information will allow the City of Keene and its co-Permittees to assess the adequacy of the City's sewer system and the co-Permittee's collection systems, respectively, to better understand vulnerabilities and deficiencies, and more quickly react to any operational issues that need attention.

Industrial Pretreatment Reporting Requirements

Comment 24

Clarification on Language
Keene requests clarification on the following language:

"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 parameters (except WET)."

Does the requirement for sufficiently sensitive test procedures apply solely to the pollutants identified in the Part I.A Table? The City is seeking clarification on if the language also applies to "NPDES Requirement for IPP Annual Report", item 5, pages 50-51 of the Draft Permit document.

Response 24

As noted in the Fact Sheet, NPDES Permits include requirements necessary to comply with the *National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods (SSTM) for Permit Applications and Reporting Rule*.[6] 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. Therefore, SSTM would apply to all sampling required in Part I.A of the Permit, including sampling associated with the annual WET testing.

The SSTM rule applies to only direct dischargers (those applying for an individual NPDES permit) and state/EPA NPDES permitting authorities. The rule does not apply to indirect dischargers. POTWs with approved pretreatment programs may at their discretion (as authorized by their local ordinances and regulations) require their indirect dischargers to achieve specific minimum levels when performing analyses or may require the use of specific methods to enable them to better characterize contributions into their system.

The City is asking specifically about a requirement to sample the influent to and the effluent from the POTW in Attachment D of the Draft NPDES Permit. Therefore, the effluent sampling required in Attachment D would require the use of SSTM whereas the influent sampling would not. However, EPA encourages all sampling to be conducted using SSTM for consistency.

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

Comment 25

Clarification on Language
Keene respectfully requests clarification on the following language:

The Draft Permit stipulates the Pretreatment Year as "… twelve (12) month period ending 60 days prior to the [report] due date…" of November 1st each year. Considering the 60 days prior to the report date, the Pretreatment Year would be from September 1st- August 31st. The City currently operates under a Pretreatment Year of October 1-September 30th. The City requests clarification on this change. **To remain consistent with current operating practices, Keene respectfully requests that the Pretreatment Year period remain the same.**

Response 25

EPA acknowledges that the City of Keene's pretreatment year runs from October 1 to September 30**.** Therefore, the Final Permit has been revised to require that the IPP Annual Report is due on December 1 instead of November 1 to allow the City sixty (60) days after the end of the City's pretreatment year to complete and submit the report.

Comment 26

Section G.3 Nitrogen
Section G.3.b of the Draft Permit states, "… 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 City is not required by the permit to report or monitor data on influent TN. **Therefore, Keene respectfully requests that the requirement to report on changes in influent TN be removed from the Final Permit.**

Response 26

Section G.3.b also requires "[t]he Permittee [to] submit an annual report to EPA and the NHDES, by February 1st 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 year." As noted in Response 33, EPA has expanded the trend-tracking requirement to the previous 5 years. In the event that TN discharges are found to have increased, an assessment of influent TN loadings will allow for a complete evaluation and understanding of the source of such increased loadings and potential strategies to reduce them in future years. As more thoroughly described in Responses 18 and 23, EPA has broad authority under the CWA and NPDES regulations to prescribe the collection of data and reporting requirements in NPDES Permits.

Comment 27

Notice of Bypass or Upset
Keene respectfully requests clarification on the following language included under Notice of Bypass or Upset of the Draft Permit (Page 22 Draft Permit).

"…all public or privately owned water systems drawing water from the same receiving water and located within 20 mile downstream of the point of discharge regardless of whether or not it is on the same receiving water or not it is on the same receiving water or another surface water to which the receiving water is tributary."

This language does not provide a definition for "drawing water." **Does this requirement apply to both surface water withdrawals and groundwater withdrawals?** Keene is aware that there are no surface water withdrawals within 20 miles downstream of the effluent discharge. **If this requirement pertains to only surface water withdrawals, and since Keene is aware that there are no existing surface water withdrawals within the defined distance, then Keene respectfully requests that this requirement be removed from the Draft Permit.**

This section of the Draft Permit also requires that "a written notification, which shall be postmarked within 3 days of the bypass or upset." Keene does not have the ability to bypass their WWTF; accordingly, **Keene respectfully requests the removal of the word "bypass" from this article. Further, Keene requests clarification on the term "upset" that would trigger this notification in advance of the issuance of the Final Permit such that the City can respond formally depending on the revised language and associated definition of the word "bypass."**

Response 27

The term "drawing water" only applies to surface water withdrawals. This is standard permit language that has been maintained in the Final Permit, in case any new water system initiates water withdrawals within 20 miles downstream of the facility during the permit term.

The term bypass is defined by the State of NH as "the intentional diversion of waste streams from any portion of the wastewater facilities.". Bypasses can occur for various reasons, for example, during construction or due to equipment failure. For this reason, the "bypass" language will remain in the Final Permit. As defined by the State of NH, the term upset is "an exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee." *See* RSA 485-A:2. These requirements are included pursuant to Section 401 of the Act, and they are also necessary to meet 'other requirements' of state law under Section 301(b)(1)(C), and the corresponding provision under 40 C.F.R. § 122.44(d)(1)(v).

Both these terms are also defined similarly, but not exactly the same, in Part II (General Conditions) of the Permit, which are drawn verbatim from federal permitting regulations. This bypass language is part of the State Certification requirements listed in Part I of the Draft and Final Permit. The State of NH will adopt EPA's issued Final Permit as a State Permit and items in Part I.4, referring to "bypass" and "upset," will also be conditions of the State Permit.

Comment 28

Water Reservoirs and Wells

Section 2.3, Available Dilution, of the Draft Permit's Fact Sheet distinguishes Keene's water sources as two wells and the Babbidge Reservoir.

In Keene, there are three separate water supplies, with two surface water reservoirs located in Roxbury, NH. Surface water is conveyed from the Babbidge Reservoir to the Water Treatment Facility. The City's surface water supply is supplemented by four groundwater wells located on West Street and Court Street. **Keene respectfully requests that the water sources be updated in the Final Permit to reflect the correct number of wells and reservoirs.**

Response 28

Although the Fact Sheet cannot be changed after the public comment period, EPA acknowledges the correction regarding the City of Keene's drinking water sources for the record and this information is reflected in the administrative record.

B. Comments from Jennifer L. Perry, P.E. of the CTDEEP, by email on July 13, 2020.

Comment 29

As a downstream state, Connecticut has a keen interest in WWTP discharges and potential impacts to both the major receiving tributaries and LIS. LIS is affected by hypoxic conditions, which occur annually in the summer. Hypoxia in LIS has been well documented to result from excessive amounts of nitrogen. Discharges from wastewater treatment plants contribute to the nitrogen loading and subsequent hypoxic conditions in LIS.

In response to the occurrence of hypoxia in LIS, Connecticut and New York jointly developed a Total Maximum Daily Load (TMDL) for nitrogen which was approved by the Federal Environmental Protection Agency (EPA) in April, 2001. In addition to a number of nitrogen reduction efforts required of Connecticut and New York, the TMDL specified a 25% reduction in the baseline nitrogen load from WWTPs located upstream of Connecticut with discharges that ultimately flow to LIS (MA, NH, and VT). At that time, nitrogen monitoring data was not available and the baseline load for the upstream state's WWTPs was determined using design flows and an average discharge concentration (15 mg/L). It is important to note that very few, if any, WWTPs were operating at design flow capacity at that time. Because of this, the baseline load estimated in the TMDL for WWTPs located upstream of Connecticut was grossly overestimated.

Nitrogen loads from the upstream state's WWTPs were later determined using 2004-2005 monitoring data and average flows. In cases where nitrogen monitoring data were not available, an assumed concentration was used that varied based on the level of treatment. Based on this analysis, it was stated that the upstream states "are meeting" the TMDL target nitrogen load. However, little if any actual nitrogen removal efforts were implemented at that time. The total nitrogen load estimate was used as a "not to exceed" cap in WWTP discharge permits. We believe the 2004-2005 nitrogen load estimate more accurately reflects actual total nitrogen discharges from WWTP's located in the upstream states. As such, this estimate represents the baseline load from which a 25% reduction target should be established in accordance with the TMDL. Additionally, it is a misrepresentation to state or infer that the upstream states are meeting the LIS TMDL.

Response 29

EPA acknowledges the comment and agrees that there is uncertainty regarding the baseline loading that existed at the time the TMDL was written. The total nitrogen loading limit, monitoring requirements, and optimization requirement will be maintained in the Final Permit, consistent with the "out-of-basin total nitrogen permitting approach" outlined in the General Response in Appendix A. Nitrogen loading limits may be decreased in future permitting actions if it is determined that nitrogen limits and optimization measures are not assuring WQS are being met in LIS. Also see General Response, Section II.E.

Comment 30

The states of Connecticut and New York met the TMDL target reductions for nitrogen in 2014 and 2017, respectively. Currently, Connecticut's WWTPs discharge 5.2 mg/l of nitrogen in aggregate, including WWTPs that have not pursued technology upgrades for nitrogen removal. In 2016, Connecticut initiated additional reductions in nitrogen at WWTPs, which will exceed the TMDL target nitrogen load when completed.

As Connecticut continues to achieve greater nitrogen reductions at its WWTPs, the load from the upstream states consequently becomes a greater portion of the total load to LIS and warrants full attention. A study of nitrogen loading trends to LIS from New England states found that approximately 50% of the nitrogen load to LIS comes from areas north of Connecticut (Mullaney and Schwarz, 2013). This study was based on 10 years (1999-2009) of data and compared computed nitrogen loads from four gaging stations located along the Connecticut-Massachusetts border to the total nitrogen load computed from gages (and estimates) within Connecticut. Based on Mullaney et al. 2018, Connecticut's nitrogen load to the CT River continued to be about 50% of the total nitrogen load to LIS and ranged from 31-52% based on 5 years (2009-2014) of monitoring data collected at two locations in the Connecticut River. Both of these studies include nonpoint source nitrogen loads as well as point source. Finally, a study conducted by Smith et al. 2008 found that very little to no attenuation occurs in the Connecticut River, so this entire total nitrogen load from the upstream states is essentially transported directly to LIS.

Response 30

EPA acknowledges the comment.

Comment 31

CTDEEP notes that the draft Keene permit includes a total nitrogen limit in pounds per day as a monthly average based on the twelve month rolling average. This total nitrogen limit of 501 pounds per day exceeds the annual average loading of 465 pounds per day determined using 2014-2018 data. It has been assumed that this permit limit will not result in an increase of total nitrogen above the target TMDL load. However, as stated in the above paragraphs, the TMDL baseline total nitrogen load for upstream states was overestimated and therefore, the TMDL target for plants such as this, is an overestimate. WWTPs located in the upstream states have initiated little nitrogen removal efforts, none of which would result in a 25% reduction. Any increase in total nitrogen loading from the WWTP likely represents an actual total nitrogen increase since the TMDL was established in 2001, and such increased load has the potential to adversely impact LIS.

While we greatly appreciate the initial steps taken by EPA to include an enforceable nitrogen load limit, we have concerns that any allowable increase in nitrogen loads will exceed the actual nitrogen load that was occurring at the time the TMDL was developed. Because any increase in nitrogen loads will impact LIS, we request that EPA assure that no increase in total nitrogen loads from the upstream states be allowed.

Response 31

EPA does not agree that this Permit will allow an increase in nitrogen loads from what the facility has historically discharged. Although the average nitrogen loading for the period of 2014 through 2018 was estimated based on assumed effluent concentrations of 19.6 mg/L to be 465 lb/day, the total nitrogen loading limit established in the Draft Permit of 501 lb/day is based on the design flow of the facility and assumed total nitrogen concentration of 10 mg/L, which is consistent with EPA's total nitrogen permitting approach. As discussed in the General Response, EPA's permitting approach is intended to cap the aggregate load of total nitrogen from out-of-basin point sources to the LIS rather than prohibiting any load increase from individual facilities.

Comment 32

The draft permit contains a condition for the WWTP to complete an evaluation of optimization methods in order to achieve the greatest performance of nitrogen removal and submit a report to EPA within one year. We concur with this condition and would like to see a requirement for the permittee to incorporate nitrogen reduction methods specifically, in the event of an increase in flow and subsequent nitrogen loads.

Response 32

As the commenter notes, the Draft Permit requires the City of Keene to evaluate nitrogen optimization methods. It also requires the City to implement recommended changes. Specifically, the Draft Permit states in Section G.3, paragraph 1:

> Within one year of the effective date of the permit, the permittee shall complete an evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen in order to minimize the annual average mass discharge of total nitrogen and submit a report to EPA and MassDEP documenting this evaluation and presenting a description of recommended operational changes. **The Permittee shall implement the recommended operational changes in order to minimize the discharge loading of nitrogen.**

(Emphasis added.) The intention of Section G.3 is to require that the permittee take actions to implement operational changes that will minimize nitrogen loadings, consistent with the optimization approach described in Section II.E of the General Response.

Because the permit includes a nitrogen loading limit and ongoing reporting of nitrogen loading amounts, EPA expects that the Permittee would implement measures to reduce future nitrogen loadings if year-to-year nitrogen loading increases for a reason not due to seasonal/annual variability. EPA expects that the annual reports to be submitted by the City required by Part I.G.3.a. of the Permit would identify optimization measures that were taken to reduce nitrogen loadings.

Comment 33

Also specified with the optimization study, is a condition for the WWTP to report annually on the nitrogen load discharged from the facility and track changes in the load relative to the previous year. CTDEEP requests that the observation of trends in total nitrogen loading be expanded to include the entire record of available total nitrogen data.

Response 33

EPA agrees with the comment that tracking trends in nitrogen removal on a longer-term basis than simply comparing to the most recent calendar year is appropriate. Therefore, EPA has modified the language in Section I.G.3.b to require tracking based on all available data from the previous calendar year and the previous five calendar years.

EPA notes that all effluent data are also publicly available on EPA's website, Environment and Compliance Data Database (see EPA ECHO Database, https://echo.epa.gov).

C. Comments from Barbara Skuly of ARLAC, by email on July 20, 2020.

The Ashuelot River Local Advisory Committee (ARLAC) convened in 1994 with the acceptance of the Ashuelot River into the NH Rivers Management and Protection Program. ARLAC represents the ten corridor towns of the Ashuelot River and acts in an advisory capacity to NHDES. ARLAC has implemented a river monitoring program since 2001 with the assistance of the NH Volunteer River Assessment Program. Our total phosphorus data is cited in the current draft permit. We have also commented on the 2006 draft NPDES permit for this facility. It is with this background that we offer our comments on the proposed NPDES permit for the Keene Wastewater Treatment Plant (WWTP).

Comment 34

The proposed average monthly phosphorus limit of .18 mg/L with a dilution factor of 2, results in an instream concentration of .09 mg/L in the receiving water. Thereby this limit maintains the similar effect as the current permit limit of 0.2 mg/L with a dilution factor of 2.08 also resulting in an instream concentration of 0.096 mg/L. ARLAC has found significant improvement in the River total phosphorus levels since Keene WWTP has managed for this nutrient. As cited in the fact sheet, river levels upstream of the WWTP are below the Gold Book criterion of 0.1 mg/L. Levels downstream of this site, which includes some dilution from the South Branch, are also below the Gold Book criterion and would indicate the effect of the existing phosphorus limit for the WWTP has been protective using that standard. The following table shows phosphorus levels in mg/L from samples at the Cresson Covered Bridge, downstream of the WWTP and the South Branch confluence.

July, Aug, Sept 2015	July, Aug, Sept 2016	Aug, Sept 2017	July, Aug 2018	July, Aug 2019
0.018, 0.021, 0.023	0.015, 0.026, 0.020	0016, 0.012	0.025, 0.024	0.044, 0.018

However it is worth noting that NHDES Water Quality Standards (WQS) define levels of 0.026 - 0.049 mg/L as more than desirable. As the chart above shows, there are instances where readings have approached this level. Ideally a lower permit limit would help to achieve this standard.

Response 34

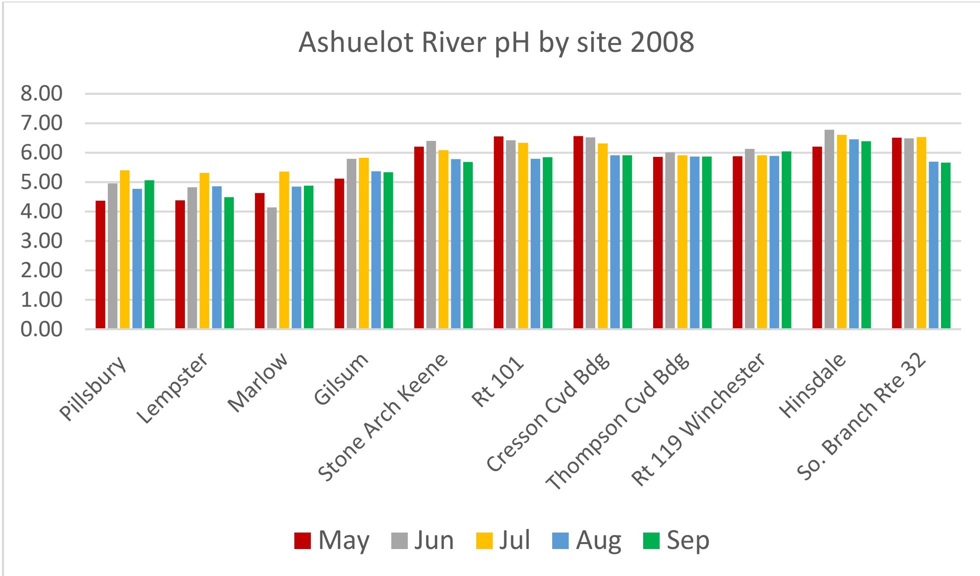
As described in the Draft Permit, EPA does not have a basis to establish a permit limit more stringent than one based on current WQS. As noted in the Fact Sheet, EPA implemented the state's narrative nutrient water quality criteria by relying on a range of relevant information, including EPA's *Gold Book*, which recommended a threshold-based value of 0.1 mg/l. This is intended to be an upper limit not to be exceeded during critical conditions, such as those occuring during low flow (7Q10) and treatment plant design flow. The NHDES has the authority to certify a more stringent limit into the Final Permit based on the range cited in the comment above, if supported by the data and necessary to meet WQS, but has not chosen to do so.

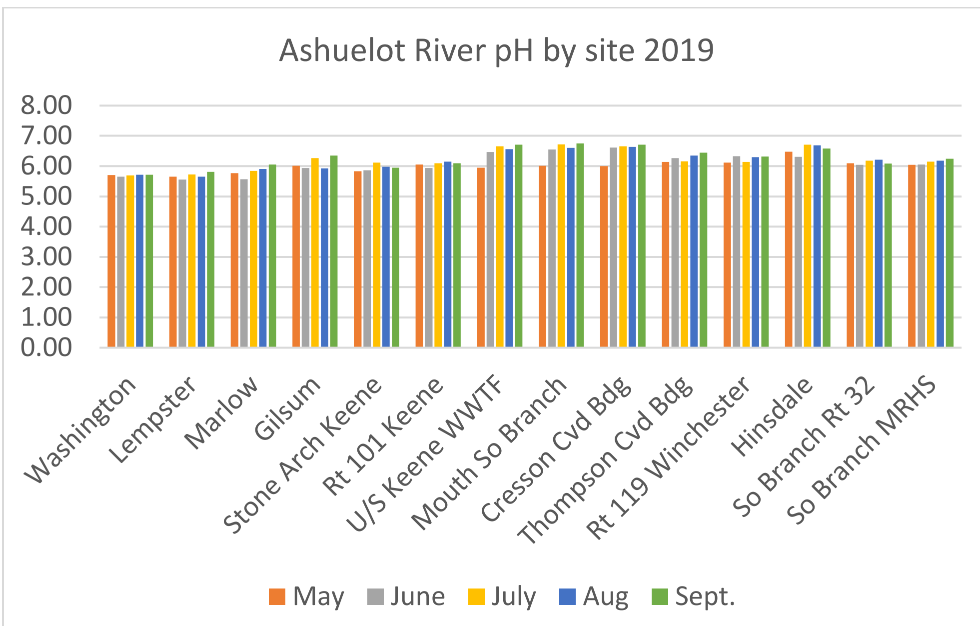
The commenter states that the NHDES WQS define levels (of instream phosphorus) of 0.026 - 0.049 mg/L as more than desirable. EPA believes that the commenter is referring to the NHDES' 2018 Consolidated Assessment and Listing Methodology (CALM) document, which is not a WQS.[7] In this document, NHDES determined that a waterbody is potentially attaining WQS if there are no dissolved oxygen impairments and the median total phosphorus (instream) concentration is below 50 µg/L based on data collected for the seasonal period of May 24 – September 15 that are five years of age or less (pp. 95-96). This indicator is not intended to assess a surface water as impaired for infrequent or minor occurrences of elevated total phosphorus. NHDES has never used this analytical methodology to determine whether to classify a river or stream in the state as impaired. Rather, this indicator is intended to address more significant and/or chronically elevated total phosphorus levels. EPA notes that New Hampshire has not adopted a numeric total phosphorus criterion into its WQS.

Comment 35

The Ashuelot River continues to be listed as impaired for low pH. The trend shows a lower pH in the upper reaches of the River upstream of Keene, but with readings increasing as the River flows through and downstream of the City. Following are charts showing the values obtained during our 2008 and 2019 monitoring seasons.

[7] https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/r-wd-19-04.pdf





Over the years the pH of the Ashuelot River has been slowly trending closer to the NH WQS of 6.5-8, the cause for this increase remains debatable. As the WQS provides the optimum range for aquatic life and the Ashuelot has been slowly approaching this standard, ARLAC supports the continuation of its application to the Keene WWTP as a basis for pH limits.

Response 35

EPA agrees and the pH range of 6.5 – 8.0 S.U., which is consistent with State WQS, will remain in the Final Permit. Also see Response 10 above.

Comment 36

Ideally a TMDL would better establish a basis for determining limits for the WWTP's effluent. The draft permit states it will be in effect for 5 years from the date of issuance. The current permit has been in effect for now 13 years. It is hoped a more timely review will occur for the next permit, and perhaps a completed TMDL will enable limits to be established in line with the actual conditions on the Ashuelot. But in the meantime we need to maintain limits that honor the standards established by the State.

Response 36

NHDES is not currently prioritizing any TMDL work for the Ashuelot River. If NHDES completes a TMDL for this segment of the Ashuelot River in the future that is approved by EPA, such TMDL's recommendations would be reflected in the subsequent permit issuance for the City of Keene.

In general, EPA has committed to improve the timeliness of our NPDES permit issuance and has established a goal that all permitting-related decisions will be made within six months.[8]

[8] https://www.epa.gov/sites/production/files/2019-09/documents/fy-2018-2022-epa-strategic-plan.pdf

APPENDIX A

GENERAL RESPONSE TO COMMENTS ON LONG ISLAND SOUND ("LIS") NPDES OUT-OF-BASIN TOTAL NITROGEN PERMITTING APPROACH IN NEW HAMPSHIRE

Numerous comments were received regarding the new total nitrogen ("TN") effluent limits. This General Nitrogen Response ("General Response") provides a comprehensive explanation of the overall approach EPA has adopted to address TN effluent limitations for out-of-basin POTWs discharging to Long Island Sound, taking into account the Clean Water Act (CWA or "the Act"), implementing regulations, case law and varied technical and policy considerations. It addresses the comments received regarding the new TN effluent limits and is referenced in many of the responses to those specific comments.

While this permitting approach governs the application of TN effluent limits in the specific permit here and allows EPA to place those limits within a wider frame of reference in order to explain their derivation, EPA underscores that NPDES permits are adjudicated on a case-by-case, permit-specific basis. The limits imposed here, in other words, do not set a precedent for other permittees, and do not bind the Region, or other regulated entities, in future permit proceedings, which will be adjudicated based on their own administrative records.

I. Introduction and Description of Permitting Approach[1]

EPA has adopted a systemic, state-by-state approach to reduce out-of-basin loading of nitrogen pollution into Long Island Sound from POTW point sources in Massachusetts, New Hampshire, and Vermont, through the coordinated issuance of individual NPDES permits ("Out-of-Basin Permitting Approach"). These out-of-basin facilities have not been assigned waste load allocations ("WLAs") under the Long Island Sound Total Maximum Daily Load[2] ("TMDL") approved by EPA in 2001. The task of allocating nitrogen loads among these facilities in a

[1] The NPDES out-of-basin permitting approach described here is distinct from the Long Island Sound Nitrogen Reduction Strategy. In December 2015, EPA sent a letter to the environmental agency commissioners of MA, CT, NY, VT and NH setting forth a post-TMDL EPA Long Island Sound Nitrogen Reduction Strategy (the "LIS Strategy") for waters in the LIS watershed. The strategy recognizes that more work may need to be done to reduce nitrogen levels, further improve dissolved oxygen ("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 mouth of the Housatonic River. Currently, EPA is responding to comments on our threshold modelling methodology from the public, external technical reviewers and our state and county partners. Documents regarding the LIS Strategy are available for public access 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. Thus, while EPA's current systemic NPDES permitting approach discussed in this general comment, and embodied in this permit, does not currently rely on data from the LIS Strategy, future efforts to establish permit limits could be informed by relevant data and recommendations that result from the LIS Strategy effort. If reductions are needed for this particular discharge, a lower water quality-based effluent limit will be added in a future permit cycle. If so, EPA anticipates exploring possible trading approaches for nitrogen loading in the Massachusetts portion of the Connecticut River watershed.
[2] Connecticut Department of Environmental Protection and New York State Department of Environmental Conservation, *A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound* (LIS TMDL), December 2000.

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. Uncontested on the record before EPA in this permit proceeding are 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 maximum annual discharge from each out-of-basin discharger from 2013 to 2017), and, second, that ongoing nitrogen-driven 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, given that the LIS is already nitrogen impaired;
- effluent limits 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,[3] 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 New Hampshire, that consideration was facility *size*. 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[4] (see estimate of recent effluent loadings appended to the Fact Sheet);
- 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;[5]
- It developed mass-based rolling annual average TN effluent limits based on design flow (consistent with 40 CFR § 122.45(b)(1)) and an effluent concentration, 10 mg/L, that can be 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 8.345;

EPA's intention in establishing a total nitrogen limit in this and future permits for out-of-basin dischargers is not specifically to achieve greater nitrogen reductions, but rather to cap the out-of-basin contribution in a manner that provides assurance to the downstream state that total nitrogen loading will not increase with population or economic development. That assurance is provided by means of enforceable effluent limits.

Although EPA considered caps for individual dischargers at their current loadings, that approach was rejected because these effluent limits are subject to statutory antibacksliding 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 unable to meet the loading limit if, for example, a new industrial discharger were to tie in, even if that discharger were willing to invest in readily available treatment technology. EPA examined out-of-basin loads across the watershed and developed effluent limits that are achievable through optimization or readily available treatment

[3] 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

[4] *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, page.

[5] *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

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 monitor receiving water response over the permit term and adjust as necessary in future permit cycles. 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.

EPA chose the 1 MGD cut off because that corresponds to the definition of major POTW under NPDES regulations. Facilities above 1 MGD account for approximately 80% of the total out-of-basin load. Because the majority of facilities in New Hampshire (18 of 27) are 1.0 MGD or smaller and collectively account for a relatively small amount of the total load, EPA believes that optimization is a reasonable point of departure for these facilities, given their comparatively small loads and user bases.

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

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

II. Statutory, Regulation and Environmental Context for EPA's Chosen Out-of-Basin Permitting Approach

Below, EPA explains the applicable statutory and regulatory structure, as well as the rationale for adopting this particular approach in lieu of others advanced on the record.

A. National Pollutant Discharge Elimination System Permits Generally

NPDES permits use two statutory mechanisms to protect water quality: (1) water quality standards, and (2) effluent limitations. *See generally* CWA §§ 301, 303, 304(b); 40 CFR pts. 122, 125, 131. Water quality standards are promulgated by states and approved by EPA. *See* CWA § 303(c)(2)(A); 40 CFR §§ 131.10-.12. The CWA and its implementing regulations require permitting authorities to ensure that any permit issued complies with the CWA and the water quality standards of all states affected by the discharge, which in this case are comprised of Massachusetts, Connecticut and New York. *See* CWA §§ 301(b)(1)(C), 401(a)(1)-(2); 40 CFR §§ 122.4(d), .44(d)(1).

Effluent limitations serve as the primary mechanism in NPDES permits for ensuring compliance with a state's water quality standards by imposing limits on the types and amounts of particular pollutants that a permitted entity may lawfully discharge. *See* CWA §§ 301(b)(1)(C), 401(a)(1)-(2). Effluent limitations for pollutants are based on the control technology available or are based on achieving the water quality standards for the receiving water. CWA § 301(b)(1)(a)-(c). The nutrient limits here are water quality-based effluent limitation, commonly referred to as "WQBELs".

B. Impaired Waters and Total Maximum Daily Load

The CWA establishes a process by which states identify and manage waters where pollution control technologies alone are not stringent enough to achieve applicable water quality standards. CWA § 303(d). These identified waters, where the applicable water quality standards have not yet been attained, are commonly referred to as "impaired" waters or "nonattainment" waters and are prioritized by the states on a list that is commonly referred to as a "303(d) list." *Id.* Once a water is identified on a 303(d) list, the state develops a management plan for bringing these waters into compliance with water quality standards. CWA § 303(d)(1)(C)-(D). This process includes setting priorities for establishing TMDLs for individual pollutants in the impaired waters. *Id.*

A TMDL defines the amount of a pollutant that a waterbody can assimilate without exceeding the state's water quality standard for that waterbody. CWA § 303(d)(1)(C). TMDLs are set at a level that incorporates seasonal variations of the waterbody and a margin of safety that takes into account gaps in knowledge. *Id.* The TMDL then allocates a portion of the receiving water's pollutant loading capacity among facilities discharging to the impaired waterbody. 40 CFR §§ 130.2(h), 130.7. These wasteload allocations ("WLAs") for point sources, which are based on the underlying water quality standards, serve as a basis for water quality-based effluent limitations in permits. In addition to wasteload allocations for point sources, TMDLs include load allocations ("LAs") for background and nonpoint sources, a margin of safety, and possibly a reserve allocation (for example, for future growth). CWA § 303(d)(1)(C); *see also* 40 CFR § 130.7; Office of Water, U.S. EPA, Doc. No. EPA-833-K-10-001, *NPDES Permit Writers' Manual* §§ 6.2.1.2, 6.4.1.1, at 6-14, -31 (Sept. 2010) ("*2010 Permit Writers' Manual*").

Although EPA initially approached the development of TMDLs one water segment at a time, EPA has long supported and encouraged states to develop TMDLs on a watershed-wide basis to more comprehensively assess and allocate pollutant loads across hydrologically-linked water segments at the same time. *See* Office of Wetlands, Oceans & Watersheds, U.S. EPA, *Handbook for Developing Watershed TMDLs* 1, 6-8 (draft Dec. 15, 2008) ("*Watershed TMDL Handbook*"); *see also* CWA § 303(d)(1); 40 CFR §§ 130.7, 131.3(h). Watershed TMDLs follow the same general process as a "single-segment TMDL," but the watershed TMDL involves larger-scale considerations and "often provides greater flexibility in developing source allocations." *Watershed TMDL Handbook* at 69. This approach is reflected in the LIS TMDL.

In addition to TMDLs, the furthering of impairment is prohibited by the antidegradation provisions of State water quality standards. 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 and waters which are meeting or exceeding the water quality necessary to protect designated and existing uses. Since the receiving water at issue here is in Connecticut, we look to Connecticut antidegradation requirements which state, in paragraph 2 of the Connecticut Water Quality Standards:

> Existing and designated uses such as propagation of fish, shellfish and wildlife, recreation, public water supply, and agriculture, industrial use and navigation, and the water quality necessary for their protection is to be maintained and protected.

As the New Hampshire point source dischargers are substantially upstream of the impaired receiving water, EPA is applying the antidegradation requirement by capping the aggregate loading of nitrogen to the Long Island Sound from New Hampshire dischargers. 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.

C. The Relationship Between NPDES Permitting and TMDLs

This permit concerns the interrelationship between two key mechanisms prescribed by the CWA for protecting and improving water quality: (1) the facility-specific effluent limits established by NPDES permits issued pursuant to section 402, and (2) the TMDL WLAs, and the assumptions underlying them, developed by states pursuant to section 303(d) to limit and allocate pollution loads among facilities discharging to impaired water bodies. The statute does not specify how NPDES permits should incorporate or reflect WLAs. EPA's implementing regulations, however, require permitting authorities to ensure that permit effluent limits are "*consistent with the assumptions and requirements* of any available [WLA] for the discharge prepared by the State and approved by EPA." 40 CFR § 122.44(d)(1)(vii)(B) (emphasis added).

As detailed below, EPA is obligated to regulate discharges that have the reasonable potential to cause or contribute to water quality standards violations through the imposition of WQBELs in NPDES permits, even where a TMDL has not yet been issued or updated. In so regulating, EPA may also impose limitations that are at once consistent as well as more stringent than the *assumptions* of a wasteload allocation in a TMDL based on new information. Finally, a permitting authority may derive a limit based on both a TMDL and the relevant water quality standard.

It has long been settled in the EAB and the First Circuit that EPA has the discretion to regulate discharge through the imposition of a WQBEL where a TMDL has not yet been issued or revised. As the Board explained in *In re Upper Blackstone Water Pollution Abatement Dist.*, 14 E.A.D. 577, 604-06 (EAB 2010):

> Regulations implementing the NPDES permitting program specifically contemplate that permit issuers will establish numeric permit limits when there is no TMDL or wasteload allocation. Subsection (vii) requires the permitting authority to "ensure" that effluent limits are consistent with "any *available* wasteload allocation." 40 CFR § 122.44(d)(1)(vii) (emphasis added). By using the phrase "any available," the regulations expressly recognize that a TMDL or wasteload allocation may not be available. This reading of the regulation is compelled by the Agency's interpretation set forth in the preamble to 40 CFR § 122.44(d)(1), which expressly outlines the relationship between subsections (vi) governing the setting of limits based on narrative criteria and (vii), which requires consistency with "any available" waste load allocation or TMDL:

> The final point about paragraph (vi) is that, *in the majority of cases where paragraph (vi) applies, waste load allocations and total maximum daily loads will not be available* for the pollutant of concern. Nonetheless, any effluent limit derived under paragraph (vi) must satisfy the requirements of paragraph (vii). Paragraph (vii) requires that all water quality-based effluent limitations comply with "appropriate water quality standards," and be consistent with "available" waste load allocations. *Thus, for the purposes of complying with paragraph (vii), where a wasteload allocation is unavailable, effluent limits derived under paragraph (vi) must comply with narrative water quality criteria and other applicable water quality standards.*

54 Fed. Reg. 23,868, 23,878 (June 2, 1989) (emphases added). This formal Agency interpretation set forth in the preamble at the time the regulation was promulgated expresses the Agency's expectation that, while wasteload allocations may not uniformly be available, effluent limits must be established without waiting for a TMDL or wasteload allocation.

The Board's decision was upheld in *Upper Blackstone Water Pollution Abatement Dist. v. EPA*, 690 F.3d 9, 26 (1st Cir. 2012), *cert. denied*, 569 U.S. 972 (2013), where the court similarly rejected the notion that permit issuers must wait until a TMDL or wasteload allocation is developed before setting an effluent limit in a permit and reiterated that scientific uncertainty is not a basis for delay in issuing an NPDES permit. *Accord In re City of Ruidoso Downs,* 17 E.A.D. 697, 733 (EAB 2019), *appeal docketed sub nom. Rio Hondo Land & Cattle Co. v. EPA*, No. 19-9531 (10th Cir. May 23, 2019); *In re City of Taunton,* 17 E.A.D. 105, 144 (EAB 2016) *aff'd*, 895 F.3d 120 (1st Cir. 2018), *cert. denied*, 139 S. Ct. 1240 (Feb. 19, 2019).

EPA, in addition, has the discretion to deviate from a wasteload allocation in a TMDL, if such a departure is warranted by the record. Significantly, WLAs are not permit limits *per se*; rather they still require translation into permit limits (*i.e.*, WQBELs). While section 122.44(d)(1)(vii) prescribes minimum requirements for developing WQBELs, it does not prescribe detailed procedures for their development. Permit limits need not be identical to the wasteload allocation established by the TMDL. *See In re City of Homedale Wastewater Treatment Plant*, 16 E.A.D. 421, 432 (EAB 2014) (upholding as "consistent with the assumptions and requirements of the…TMDL" permitting authority's decision to include monthly and weekly average effluent limits for phosphorus, rather than daily maximum contained in applicable TMDL). Rather, permit issuers have flexibility to determine appropriate effluent limits for permits within the parameters of the statutory and regulatory scheme. *See* 54 Fed. Reg. 23,868, 23,879 (June 2, 1989) (clarifying in preamble to 40 CFR § 122.44 that, in not imposing detailed procedures for establishing permit limits, EPA intended to "give[] the permitting authority the flexibility to determine the appropriate procedures for developing water quality-based effluent limits"). Accordingly, the Board has rejected the argument that the EPA permit writer, in calculating permit limits for a wastewater treatment plant, erred by using a facility's current, known design flow in developing effluent limits, rather than higher flow rate referenced in the TMDL. *In re City of Moscow*, 10 E.A.D. 135, 146-48 (EAB 2001). Thus, "TMDLs are by definition maximum limits; permit-specific limits like those at hand, which are more conservative than the TMDL maxima, are not inconsistent with those maxima, or the WLA upon which they are based." *City of Moscow*, 10 E.A.D. at146-48. *See also City of Taunton v. EPA*, 895 F.3d 120, 139-40 (1st Cir. 2018) (upholding Agency's decision to establish necessary permit limits to comply with water quality standards based on available information at the time of permit reissuance (citing *Upper Blackstone Water Pollution Abatement Dist. v. EPA*, 690 F.3d 9, 26 (1st Cir. 2012), *cert. denied*, 569 U.S. 972 (2013))), *cert. denied*, 139 S. Ct.___ (Feb. 19, 2019)).

Additionally, neither the CWA nor its implementing regulations provide a basis for concluding that a permitting authority cannot derive a limit based on *both* a TMDL *and* the relevant water quality standard if there is a record justification to warrant that approach. *In re City of Ruidoso Downs,* 17 E.A.D. 697, 733 (EAB 2019), *appeal docketed sub nom. Rio Hondo Land & Cattle Co. v. EPA*, No. 19-9531 (10th Cir. May 23, 2019); *see also* NPDES Surface Water Toxics Control Program, 54 Fed. Reg. 23,868, 23,879 (June 2, 1989) (incorporating language into the regulations that requires water quality-based effluent limits to be derived from water quality standards because that "is the only reliable method for developing water quality-based effluent limits that protect aquatic life and human health"). To be sure, Sections 301 and 303 have different purposes; each represents a distinct aspect of the CWA statutory scheme that is implemented under a separate set of regulatory authorities. *Compare* 40 CFR § 122.44 (containing NPDES permitting regulations) *with* 40 CFR § 130.7 (containing CWA section 303(d) and TMDL regulations). *See In re City of Taunton Dep't of Pub. Works*, 17 E.A.D. 105, 142-144 (EAB 2016), aff'd, 895 F.3d 120, 136 (1st Cir. 2018), cert. denied, 139 S. Ct. ___ (Feb. 19, 2019) (explaining distinction between CWA § 303(d) listing process and the NPDES permitting process, and observing that, "The 303(d) listing process represents a statutory *response* to water pollution" while "NPDES permitting under CWA section 301 applies to individual discharges and represents a more *preventative* component of the regulatory scheme in that, under section 301, no discharge is allowed except in accordance with a permit.") (emphasis in original). But TMDLs, wasteload allocations developed from TMDLs, and water quality-based effluent limits in permits share a common foundation in that all are required to take into account and assure that relevant water quality standards will be met. This conclusion is reflected in the applicable NPDES regulation at 40 CFR § 122.44(d)(1)(vii)(A)-(B):

> (vii) When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that:
>
>> (A) The level of water quality to be achieved by limits on point sources established under this paragraph is derived from, and complies with all applicable water quality standards; *and* [emphasis added]
>>
>> (B) Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7.

These two provisions are not to be read in isolation; rather, as indicated by the word "and," these requirements must be read in conjunction with one another. This is in in keeping with other provisions of the NPDES regulations implementing the NPDES program and CWA § 301, including 40 CFR 122.4(a) ("No permit may be issued…[w]hen the conditions of the permit do not provide for compliance with the applicable requirements of the CWA, or promulgations promulgated under CWA'); 122.44(d)(4) (requiring NPDES permits to include "any requirements in addition to or more stringent than promulgated effluent limitation guidelines or standards under sections 301…of the CWA necessary to…[c]onform to applicable water quality requirements under section 401(a)(2) of CWA when the discharge affects a State other than the certifying State") and 122.44(d)(5) (requiring NPDES to "Incorporate any more stringent limitations, treatment standards, or schedule of compliance requirements established under Federal or State Law or regulations in accordance with section 301(b)(1)(C) of the CWA"). *See also* NPDES Surface Water Toxics Control Program, 54 Fed. Reg. 23,868, 23,879 (June 2, 1989) (incorporating language into the regulations that requires water quality-based effluent limits to be derived from water quality standards because that "is the only reliable method for developing water quality-based effluent limits that protect aquatic life and human health"). *See City of Taunton v. EPA*, 895 F.3d 120, 139-40 (1st Cir. 2018) (upholding EPA's decision to establish necessary permit limits to comply with water quality standards based on available information (citing *Upper Blackstone Water Pollution Abatement Dist. v. EPA*, 690 F.3d 9, 26 (1st Cir. 2012), *cert. denied*, 569 U.S. 972 (2013).

D. The Nutrient Limits Are Consistent with the Assumptions and Requirements of the LIS TMDL

It is undisputed that excessive nitrogen loadings are causing significant water quality problems in Long Island Sound, including low dissolved oxygen. In December 2000, the Connecticut Department of Environmental Protection ("CT DEP"), now known as the Connecticut Department of Energy and Environmental Protection ("CT DEEP"), and New York State Department of Environmental Conservation ("NYSDEC"), completed a TMDL for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL includes a WLA for point sources and a load allocation ("LA") for non-point sources. The point source WLAs for in-basin sources (Connecticut and New York State) are allocated facility-by facility and were developed to achieve an aggregate 60% reduction in point source loading from those two states. The point source WLA in the TMDL *assumes* an aggregate 25% reduction from the baseline total nitrogen loading estimated in the TMDL for out-of-basin sources (Massachusetts, New Hampshire and Vermont wastewater facilities discharging to the Connecticut, Housatonic and Thames River watersheds), but does not allocate loads by facility. *See* TMDL--A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound (CT DEP 2000, page 33).

Although the facility's discharge has not been assigned a specific WLA, it is still subject to the assumptions incorporated into the LIS TMDL under Section 303 of the Act, and implementing regulations, as well as compliance with applicable water quality standards under Section 301 of the Act. The nitrogen load limit in the permit is necessary to meet federal regulations at 40 CFR § 122.44(d)(1)(vii)(A), which as explained require that effluent limits be consistent the assumptions and requirements of any available approved wasteload allocation, and 40 CFR § 122.44(d)(1)(vii)(B), which require compliance with state water quality standards. In its 2001 LIS TMDL approval letter and attached review memo, EPA acknowledged the TMDL assumption that a 25% reduction of the out-of-basin point source load was a reasonable, necessary condition for approving the LIS TMDL. It committed to using its NPDES authorities to implement this reduction. EPA discussed the out-of-basin nitrogen loads as follows:

> The TMDL identifies wasteload allocations for out-of-basin nitrogen loads (i.e., tributary loads) that would be achieved through the implementation of Phase IV reduction targets. Specifically, the Phase IV targets include a 25 percent reduction in point source nitrogen loads, based on the clear role that these sources have on water quality in Long Island Sound.
>
> As discussed above, EPA is not approving the out-of-basin nitrogen reductions as formal allocations but rather as reasonable assumptions on which the in-basin reductions are based. In this case, the states' estimated 25 percent reduction in nitrogen loads from point sources (primarily POTWs) is reasonable because this level of reduction has been demonstrated as feasible through Biological Nutrient Removal (BNR) retrofits of existing facilities. These low-cost retrofits were implemented at numerous Connecticut POTWs during Phase II of the Long Island Sound nitrogen reduction program. The reductions achieved by these retrofits support the predicted 25 percent reduction by out-of-basin sources. EPA believes that these estimates of future reductions make sense. Moreover, as discussed in the Reasonable Assurance section below, EPA is prepared to use its authorities when issuing NPDES permits to dischargers in Massachusetts and New Hampshire, and in overseeing permit issuance in Vermont, to translate the nitrogen reductions into facility specific requirements in order to achieve the overall 25 percent reduction level. EPA has already begun to include nitrogen monitoring requirements in New Hampshire permits.

Review Memo Section 5.B (page 13, emphasis added).[6] Therefore, EPA's approval of the 2000 TMDL included a commitment on EPA's part to use its NPDES permitting and oversight authorities to reasonably assure that the assumption regarding out-of-basin load reductions identified in the TMDL would occur, consistent with the regulatory requirements. In this and other documents, EPA refers to that commitment as the out-of-basin WLA, consistent with the language in the TMDL.

The annual loading effluent limit is consistent with the assumptions used to derive the WLA for both in-basin and out-of-basin dischargers in the LIS TMDL, because the maximum estimated total out-of-basin point source load is assured to be less than the out-of-basin WLA assumed by the 2000 TMDL. As TN increases may be driven by population increases (the estimated wastewater TN loading is 10 pounds per person per year[7]), TN effluent limits are necessary to assure that the aggregate out-of-basin loading is not exceeded due to population. EPA anticipates that forthcoming out-of-basin permits in New Hampshire will include average annual loading nitrogen limits for facilities with design flow greater than 1 MGD, along with TN optimization requirements in all permits for dischargers greater than 100,000 gpd, and monitoring for all dischargers, in order to assure that TN loadings will be not increase over time to levels that exceed the WLA assumption in the TMDL.

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[6] TMDL Approval Letter from the Long Island Sound Office of the U.S. EPA to the states of New York and Connecticut, with enclosure entitled: EPA New England and EPA Region 2 TMDL Review for TMDL in Long Island Sound, Connecticut and New York, Final Status, Impairment/Pollutant is Hypoxia (low dissolved oxygen) due to nitrogen, dated April 3, 2001.

[7] Unit loading from residences has been estimated at an average of 0.027 lb/capita/d or 10 lb/capita/year. See EPA Manual – Nitrogen Control, September 1993, EPA/625/R-93/010, Page 10.

E. The Nutrient Limits are Imposed Based on a Finding of Reasonable Potential to Cause or Contribute to an Exceedance of Water Quality Standards; Constitute a Translation of the States' Narrative Nutrient Water Quality Standards; and Are Necessary to Ensure Compliance with Water Quality Standards, Including Antidegradation

Narrative standards have the same force and effect as other state water quality standards; unlike numeric criteria, however, narrative water quality standards are necessarily subject to translation prior to their application. *See American Paper Inst. v. United States EPA*, 996 F.2d 346, 351 (D.C. Cir. 1993). As explained by the D.C. Circuit:

> As long as narrative criteria are permissible…and must be enforced through limitations in particular permits, a permit writer will inevitably have some discretion in applying the criteria to a particular case. The general language of narrative criteria can only take the permit writer so far in her task. Of course, that does not mean that the language of a narrative criterion does not cabin the permit writer's authority at all; rather, it is an acknowledgement that the writer will have to engage in some kind of interpretation to determine what chemical-specific numeric criteria—and thus what effluent limitations—are most consistent with the state's intent as evinced in its generic standard.

See American Paper Inst., 996 F.2d at 351 (citations omitted). This process of translating a narrative criterion is governed under EPA regulations by 40 CFR § 122.44(d)(1)(vi), which implements Sections 301 and 402 of the Act. Subsection (A) of that provision mandates at the outset a calculation of a protective ambient threshold concentration for the pollutant:

> Where a State has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits using one or more of the following options:
>
> > (A) Establish effluent limits using a calculated numeric water quality criterion [emphasis added] for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use.

See also Upper Blackstone Water Pollution Abatement Dist. v. United States EPA, 690 F.3d at 23. Because both Connecticut and New York employ narrative water quality criteria for the relevant pollutants, EPA relied in the first instance on the TMDL (a sophisticated and resource-intensive modeling and technical effort representing the input of five states and EPA) as a translation of these criteria under 40 CFR § 122.44(d)(1)(vi), and supplemented that reliance with an analysis of subsequent water quality monitoring data and other information related to LIS nutrient-driven impairments.[8]

As the Board and First Circuit have held, EPA has a significant amount of flexibility within the bounds of the CWA in determining whether a particular discharge has a reasonable potential to cause an excursion above a water quality criterion. *In re City of Taunton Dep't of Pub. Works*, 17 E.A.D. 105, 144 (EAB 2016), aff'd, 895 F.3d 120, 136 (1st Cir. 2018), cert. denied, 139 S. Ct. ___ (Feb. 19, 2019)*; Upper Blackstone Water Pollution Abatement Dist. v. U.S. Envtl. Prot. Agency*, 14 E.A.D. 577, aff'd, 690 F.3d 9 (1st Cir. 2012), cert. denied, 133 S. Ct. 2382 (2013); *In re Town of Newmarket*, 16 E.A.D. 18 (EAB 2013); *In re City of Attleboro Wastewater Treatment Plant*, 14 E.A.D. 398 (EAB 2009). The requirement to impose a permit limit is triggered by a finding that the facility may discharge a pollutant at a level that "contributes" to or has the "reasonable potential" to cause a water quality standard violation. *Upper Blackstone*, 14 E.A.D. at 599 & n.29; *see also* 40 CFR § 122.44(d). To establish a "reasonable potential" the permitting authority must show some level of certainty greater than a mere possibility in the technical judgment of the permitting authority. *Upper Blackstone*, 14 E.A.D. at 599 n.29 (explaining that "'[r]easonable potential' requires some degree of certainty greater than a mere possibility, but it leaves to the permit writer's scientific and technical judgment how much certainty is necessary"). Additionally, the reasonable potential analysis must be based on "worst-case" effluent conditions. *Id*. at 599. Thus, as explained previously, this analysis requires "a precautionary approach when determining whether the permit must contain a water quality-based effluent limit for a particular pollutant," rather than "certainty of an existing causal link between a specific discharge and a particular violation of water quality standards" *Id*.

Although nitrogen driven impairments in LIS have been reduced, they have not been eliminated, and 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 existing uses are not being protected, based on analyses of water quality data and information in the administrative record.[9] The out-of-basin loads, whose magnitude is described above, necessarily contribute, or have the reasonable potential to contribute, to these violations. Designated uses for the marine waters of Long Island Sound (Class SA) include "habitat for marine fish, other aquatic life and wildlife." *See* RCSA § 22a-426-(f) and (g). Connecticut's WQS protect those uses from excessive nutrient pollution by means of the following narrative criteria: "The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall not exceed that which supports maintenance or attainment of designated uses." Although 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.[10] As noted, it is undisputed that significant amounts of nitrogen from out-of-basin facilities are discharged to the

[8] NY and CT have narrative nutrient criteria, as well as numeric DO criteria, along with antidegradation requirements protecting existing uses. LIS was listed due to low DO. The use impairment includes: decrease in bathing area quality, an increase in unhealthy areas for aquatic marine life, an increase in mortality of sensitive organisms, poor water clarity for scuba divers, a reduction in commercial and sport fisheries values, a reduction in wildlife habitat value, degradation of seagrass beds, impacts on tourism and real estate, and poorer aesthetics. See TMDL at p. 9.

[9] *See* e.g. Long Island Sound Report Card 2018, at https://www.ctenvironment.org/wp content/uploads/2018/09/ReportCard2018-BestView.pdf

[10] Long Island Sound Study, *A Healthier Long Island Sound: Nitrogen Pollution*, 2019, page 2.

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).

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*[11] which notes that while the area of hypoxia has been reduced, water quality standards have not yet been met.[12]

In 2015, the Long Island Sound Study (LISS)[13] updated its Long Island Sound Comprehensive Conservation and Management Plan (CCMP)[14] 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, [15] such as wastewater treatment plants in New Hampshire.

A study published in 2008 used both measurements and mass-balance modeling to evaluate the potential for nitrogen attenuation in the main stem of the Connecticut River in April and August 2005. One of the reaches studied was a 55 km stretch of the Connecticut River in Massachusetts. The study found no nitrogen loss in that reach either in April or August, most likely due to the depth and higher velocities in the main stem of the river compared to the shallower, slower tributaries where previous models and studies had demonstrated varying degrees of nitrogen attenuation.[16]

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.[17] 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

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[11] 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

[12] *2019 Long Island Sound Hypoxia Season Review* (page 13)

[13] 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/

[14] LISS, Long Island Sound Comprehensive Conservation and Management Plan 2015 Returning the Urban Sea to Abundance (CCMP), 2015.

[15] CCMP, page 19.

[16] 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

[17] 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

was published by Moore and others in 2011[18]. 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[19]. 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.[20,21] Where no data was available, an estimated typical pollutant concentration (TPC) and flow was used to approximate nitrogen loading from point sources according to their industrial category.[22]

The permit conditions at issue here were fashioned to ensure full implementation of CWA §§ 301(b)(1)(C) and 402, as well as consistency with the assumptions of the LIS WLA. A permitting authority has considerable 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.* 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).

Finally, antidegradation provisions of State water quality standards require that existing uses be fully maintained and protected, which is an additional basis for the limit. EPA does not believe that increased nitrogen loading into an impaired water body that is suffering the ongoing effects of cultural eutrophication would be consistent with applicable antidegradation requirements.

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[18] 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

[19] 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.

[20] Moore (2011), page 968.

[21]Maupin, Molly A. and Tamara Ivahnenko, 2011. Nutrient Loadings to Streams of the Continental United States From Municipal and Industrial Effluent. *Journal of the American Water Resources Association* (JAWRA) 47(5):950-964.

[22] Maupin (2011), page 954.

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 and waters which are meeting or exceeding the water quality necessary to protect designated and existing uses. Since the receiving water at issue here is in Connecticut, EPA looked to Connecticut antidegradation requirements which state, in paragraph 2 of the Connecticut Water Quality Standards:

> Existing and designated uses such as propagation of fish, shellfish and wildlife, recreation, public water supply, and agriculture, industrial use and navigation, and the water quality necessary for their protection is to be maintained and protected.[23]

As the New Hampshire point source dischargers are substantially upstream of the impaired receiving water EPA is applying an effluent limitation consistent with antidegradation requirements by capping the aggregate loading of nitrogen to the Long Island Sound from New Hampshire dischargers, to prevent further degradation of the receiving waters that would result from increased loading from the facility, given that nitrogen-driven cultural eutrophication, and the deleterious effects on existing and designated uses that attend this process, is still underway in LIS. 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.

In order to assure compliance with water quality standards, and fully implement and translate the states' narrative nutrient and related criteria, in EPA's judgment, out-of-basin loads 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. This conclusion will be tested for the term of the permit through monitoring programs in LIS and will be adjusted as necessary in future permit cycles. This review and potential tightening of the conditions in NPDES permits is a basic feature of the CWA.

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[23] Connecticut DEEP, 2011, Connecticut Water Quality Standards, page 2. Available at: https://portal.ct.gov/-/media/DEEP/water/water_quality_standards/wqsfinaladopted22511pdf.pdf.

III. Principal Objections to EPA's Chosen Out-of-Basin Permitting Approach

Overall, commenters objecting to the approach adopted by EPA misapprehend the legal framework governing EPA's derivation of NPDES effluent limitations under CWA § 402, which under federal regulations must not only be consistent with the assumptions and requirements of any available WLA, but also must ensure compliance with applicable water quality standards pursuant to CWA § 301, based on information reasonably available to EPA at the time of permit reissuance.

A. Effluent limits may be more stringent than a TMDL WLA

Several commenters argue that compliance with the nitrogen reductions assumed by the LIS TMDL preclude the imposition of further nitrogen controls on the facility, or rely on the closely-related proposition that EPA must await the development and approval of new, facility-specific WLAs for the out-of-basin POTWs prior to imposing effluent limitations, even if there is evidence of ongoing water quality impairments in the receiving waters (a fact not disputed on the permit record). These positions, however, are unfounded, as the Environmental Appeals Board and United States Court of Appeals for the First Circuit have repeatedly and unambiguously held that EPA need *not* await development of an EPA-approved, facility-specific WLA, or collection of new water quality data or creation of new models, in order to independently develop and impose a water quality-based effluent limitation stringent enough to satisfy CWA § 301 at the time of permit reissuance. *See City of Taunton v. U.S. Envtl. Prot. Agency,* 895 F.3d 120 (1st Cir. 2018), cert. denied, 139 S. CT. 120 (2019); *Upper Blackstone Water Pollution Abatement Dist. v. U.S. Envtl. Prot. Agency*, 690 F.3d 9 (1st Cir. 2012), cert. denied, 133 S. Ct. 2382 (2013).

Additionally, some commenters appear to misconstrue the basis for the permit limits for the out-of-basin dischargers, improperly characterizing that foundation as the WLA established for POTWs discharging directly into Long Island Sound. By this, they imply that the permit need only comply with the WLA, as opposed to the Act as a whole. This view is incorrect in at least two ways. First, as a factual matter, the out-of-basin dischargers were not assigned a WLA; reductions from these sources were an *assumption* of the LIS WLA. Second, EPA's permit limits were not only developed to be consistent with the LIS WLA, but also derived from water quality standards under CWA § 303, which may lead to the imposition to more stringent effluent limitations necessary to achieve those standards, as EPA is obligated to do under CWA § 301. Thus, in accordance with the Act and EPA's implementing regulations, they have been: (1) written to be "consistent" with the assumptions and requirements of the LIS WLA, which was established based on an assumption that out-of-basin sources of nitrogen would be reduced by 25%, and (2) made more stringent than that assumption in order to comply with CWA § 301, based on information available to EPA at the time of permit reissuance, specifically, evidence of ongoing nitrogen-driven impairments in LIS.

B. EPA need not await a TMDL update before it can incorporate new information relevant to nitrogen loading and receiving water quality in an NPDES permit, and consideration of new information does not amount to a de facto TMDL update

Some commenters argued that EPA must await development of a new TMDL prior to considering updated information when developing NPDES permits. This view improperly subordinates the NPDES program to the TMDL program. In fact, they are coordinate programs.

TMDLs establish pollutant maxima under Section 303 of the Act, and do not preclude the imposition of a more stringent limit pursuant to an NPDES permit under Section 402. While NPDES permits must be consistent with the assumptions and requirements of any available WLA pursuant to EPA regulations, EPA has an independent obligation to write NPDES permits that ensure compliance with Section 301, using the best information available at the time of permit reissuance, which in this case includes an evaluation of TMDL implementation and current receiving water quality in LIS. While the TMDL represented, as a commenter notes, "the best scientific and legal approach for meeting water quality standards in the LIS" at the time, EPA may supplement its scientific and technical record for the purposes of NPDES permitting, including through refining its knowledge of TMDL inputs and assumptions, such as baseline loads, which are inherently dynamic and vary from permit cycle to cycle, as well as an evaluation of instream monitoring and data that reflect the extent to which the TMDL endpoints are being achieved. Contrary to some commenters' assertions, EPA is not attempting to modify the TMDL through issuance of a permit; EPA, rather, is implementing the TMDL by issuing a permit consistent with the assumptions and requirements of that TMDL as required by the federal regulations, and pursuant to its independent obligations under Section 402 and 301 of the Act. *See* 40 CFR 122.44(d)(1)(vii)(A)-(B).

TMDLs are in a sense fixed in a moment in time, but that attribute of TMDLs does not suspend consideration of new information or preclude new analysis consistent with the TMDL under other regulatory programs, such as the NPDES permit program, if the permit record calls for such an evaluation. This stands to reason, given that a person is authorized to discharge, if at all, through an NPDES permit, not a TMDL, and the issuance of an NPDES permit that does not assure attainment of water quality standards is prohibited under the Act and regulations implementing the NPDES program. EPA is obligated under the Act to revisit NPDES permit requirements and generate updated record bases for decision at periodic intervals not to exceed five years. TMDLS, on the other hand, are planning documents and not independently enforceable. Rather, they are implemented though the regular issuance of NPDES permits, and at each NPDES permit reissuance, the permit issuer *must* demonstrate that the discharge will not cause or contribute to a water quality standards violation. Reassessing the baseline load, which was based on estimated point source loads from over 30 years ago, is one component of this process. This evaluation is a function of the NPDES permitting process and does not amount to an "update" of the TMDL. EPA is obligated to ensure not only that the NPDES WQBELs are consistent with the assumptions and requirements of any available WLA, but to ensure that the permit complies with the requirements of Section 301. Given the lapse of time between TMDL approval, and derivation of the baseline assumptions underlying the TMDL, this type of inquiry is reasonable, and indeed has been squarely requested of EPA through comments on the record, including but not limited to those from a downstream affected state. (Even commenters objecting to this reassessment recognize that the NPDES permits necessarily incorporate more recent data and information, given the structure of Section 301 and 402; in objecting to a proposed benchmark, the commenter states, "It does not represent the most recent data available to the Agency at the time of permit renewal.")

C. The optimization requirement is not vague and is within EPA's authority

Some commenters argued that that a special condition, such as the optimization requirement, is not anticipated by rule, guidance or definition. EPA is authorized to impose narrative conditions in permits to abate the discharge of pollutants when, for example, "The practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA." 40 CFR § 122.44(k)(4). Special conditions are defined in EPA's NPDES Permit Writer's Manual as those which,

> "supplement numeric effluent limitations and require the permittee to undertake activities designed to reduce the overall quantity of pollutants being discharged to waters of the United States, to reduce the potential for discharges of pollutants, or to collect information that could be used in determining future permit requirements." (*NPDES Permit Writers' Manual, Chapter 9,* USEPA September 2010 [EPA833-K-10-001]).

As the optimization requirement supplements the TN annual average load limit and is designed to reduce the overall quantity of nitrogen being discharged, it clearly fits within this definition. The requirement is not overly prescriptive, because it is intended to afford the permittee with the latitude to develop the optimization strategy that best meets the configuration and operation of the facility. EPA in imposing the optimization requirement is not dictating specific operational measures at the facility.

EPA disagrees that the optimization is vague. Optimization has been defined, for example, as the process of identifying the most efficient or highest quality outcome, given current constraints, by maximizing positive factors and minimizing negative factors. A permittee applying this or other definition in common usage would not be at risk of arbitrary enforcement. Rather, this condition gives a person of ordinary intelligence a reasonable opportunity to know what is prohibited and comply with the requirement by considering objective factors, so that they may act accordingly. The operators of the facility, as evidenced by their comments, have a deep and nuanced expertise in nutrient removal capabilities and constraints of the plant, and of the factors that impact plant performance.

It is intended that during the first year of the permit, alternative methods of operating the facility to optimize nitrogen removal will be evaluated. At the end of the year the permittee will submit a report to the EPA and NHDES of its findings. The optimal operational method will be self-implementing by the permittee at the beginning of the second year and does not require EPA or NHDES approval. It is the intent of EPA and NHDES that treatment facilities optimize nitrogen removal and, at a minimum, the facilities must not increase their nitrogen discharge loadings.

D. Voluntary reductions in Total Nitrogen discharge will not assure attainment of water quality standards

Certain commenters suggest that *voluntary* reductions by the out-of-basin dischargers are sufficient to ensure compliance with applicable water quality standards under Section 301 of the Act. The Region disagrees. One long-standing principle is that permits must "ensure" compliance with water quality requirements. *See* 40 CFR § 122.4(d); *In re City of Marlborough*, 12 E.A.D. 235, 250 (EAB) (2005) (finding that "possible" compliance is not the same as "ensuring" compliance); *In re Gov't of D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323,342 (EAB 2002) (finding that "reasonably capable" does not comport with the "ensure" standard). EPA has similarly interpreted the CWA to prohibit it from issuing an NPDES permit "[w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of *all affected States*." 40 CFR § 122.4(d) (emphasis added); *accord Arkansas v. Oklahoma*, 503 U.S. 91, 105 (1992) (noting that the regulation dates back from 1973). EPA has promulgated two other regulations with similar requirements. The first requires each NPDES permit to include conditions necessary to "[a]chieve [WQSs] established under section 303 of the CWA, including State narrative criteria for water quality." 40 CFR § 122.44(d)(1). The second requires each NPDES permit to "[i]ncorporate any more stringent limitations…established under Federal or State law or regulations in accordance with section 301(b)(1)(C)." 40 CFR § 122.44(d)(5). Pollutant controls that may be set aside, for any reason, at the sole election of the discharger—even if those increased loadings will contribute to further violations of water quality standards—cannot be said to "ensure" compliance with these standards. EPA is thus obligated under Section 301 of the Act and implementing regulations to include enforceable limits in the permit.

E. There is a reasonable level of scientific certainty given the facts in the record to establish an effluent limit

Some commenters argued that more data and modeling is necessary before determining whether further nitrogen controls from out-basin-dischargers would be necessary and, if so, the precise extent of those reductions. While there will always be an irreducible amount of uncertainty given the varied sources of nitrogen loading into LIS and the size and complexity of that water body, EPA is nevertheless obligated to exercise its scientific expertise and apply its technical judgment based on the information it has at the time of permit reissuance, which under the Act is called for at regular intervals not to exceed five years. *See Upper Blackstone*, 690 F.3d at 22 ("[N]either the CWA nor EPA regulations permit the EPA to delay issuance of a new permit indefinitely until better science can be developed, even where there is some uncertainty in the existing data."); *Ethyl Corp. v. EPA,* 541 F.2d 1, 28 (D.C.Cir.1976) (en banc) ("[R]ecognizing ... the developing nature of [the field].... [t]he [EPA] Administrator may apply his expertise to draw conclusions from suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections from imperfect data, from probative preliminary data not yet certifiable as 'fact,' and the like."). But here, once again, what remains certain and undisputed on the record before EPA is the fact that large amounts of nitrogen from out-of-basin dischargers contribute to ongoing nitrogen water quality impairments in LIS. *Miami–Dade County v. EPA,* 529 F.3d 1049, 1065 (11th Cir.2008) (holding that the "EPA is compelled to exercise its judgment in the face of scientific uncertainty unless that uncertainty is so profound that it precludes any reasoned judgment"). In light of this fact and applicable case law construing the Act, EPA is more than entitled under the Act to proceed with the imposition of reasonable permit effluent limits, designed to achieve gross reductions, on the out-of-basin dischargers.

ATTACHMENT B

SPRINGFIELD, MASSACHUSETTS NPDES PERMIT COMMENT LETTERS

Connecticut Department of

ENERGY & ENVIRONMENT AL PROTECTION

79 Elm Street• Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

February 7, 2018

Meridith Timony
U.S. Environmental Protection Agency-Region 1
Office of Ecosystem Protection
Municipal Permits Unit (OEP06-l)
5 Post Office Square , Suite 100
Boston, MA 02109-3912

Clair Golden
MA Department of Environmental Protection
205B Lowell Street
Wilmington, MA 01887

RE: Draft Springfield Regional Wastewater Treatment Plant and CSO discharge permit number (MA0101613)

Dear Ms. Timony and Ms. Golden,

The Connecticut Department of Energy and Environmental Protection (CTDEEP) is providing comment on the draft NPDES permit for the Springfield Regional wastewater treatment plant (WWTP) and combined sewer outfall (CSO) discharges. The draft permit authorizes discharges of treated, untreated, and partially treated wastewater to the Connecticut River which subsequently flows through Connecticut to Long Island Sound (LIS).

As a downstream state, Connecticut has a keen interest in both the WWTP and CSO discharges and potential impacts to both the Connecticut River and LIS. LIS is affected by hypoxic conditions, which occur annually in the summer. Hypoxia in LIS has been well documented to result from excessive amounts of nitrogen. Discharges from wastewater treatment plants and combined sewer overflows contribute to the nitrogen loading to LIS.

CTDEEP's comments on the draft Springfield discharge permit are provided below under four main topic areas: Nitrogen, Combined Sewer Overflows, Co-permittees , and Public Hearing.

<u>Nitrogen</u>

In response to hypoxic conditions in LIS, Connecticut and New Yorkjointly developed a Total Maximum Daily Load (TMDL) for nitrogen which was approved by the Federal Environmental Protection Agency (EPA) in April, 2001. Please update the permit fact sheet to more accurately reflect this information relative to the LIS TMDL.

In addition to a number of nitrogen reduction efforts required of Connecticut and New York, the TMDL specifies a 25% reduction in the estimated baseline nitrogen load from states upstream of Connecticut (MA, NH, and VT). Because the baseline load was determined using an average discharge concentration (15 mg/L) and design flows (monitoring data was not available at that time), the baseline load was grossly overestimated. As a result, Massachusetts met the 25% reduction in 2005, however, little if any actual nitrogen removal efforts were implemented. EPA does not allow such "credits" regarding nitrogen load reductions to LIS where Connecticut and New York are concerned.

Upon review of the draft permit, CTDEEP concludes that the proposed three options for total nitrogen optimization benchmarks are inadequate to address nitrogen loading to LIS. All three proposed options only establish a benchmark and fail to require an actual permit limit. In addition, the proposed benchmark for option 1 exceeds the baseline cap of 1,648 pounds/day by 631 pounds/day. Although, EPA makes note of this in the fact sheet, EPA fails to explain how allowing an exceedance from the baseline cap, established using 2004-2005 data is acceptable. How can EPA justify allowing a greater discharge of nitrogen than the Springfield WWTP is capable of obtaining?

We would also like to bring to your attention, the Enhanced Implementation Plan (EIP), which allowing the Springfield WWTP to exceed the baseline cap directly violates. In 2011, the five watershed states (CT, NY, MA, NH, VT) and EPA agreed upon an EIP. The plan requires EPA and the tributary states to implement a tributary state wastewater treatment plant (WWTP) permitting strategy with a goal of essentially capping existing WWTP total nitrogen loads at or near existing levels until agreement is reached on final allocations and how they will be achieved.

Finally, the draft permit requires the WWTP to optimize in order to achieve the greatest performance of nitrogen removal. However, the permittee has demonstrated greater nitrogen removal capabilities and as such, the WWTP is already poised to comply with this condition. In essence, the WWTP will be permitted to discharge more nitrogen than it is capable of removing upon issuance of this draft permit.

A study of nitrogen loading trends to LIS from New England states found that approximately 50% of the nitrogen load to LIS comes from areas north of Connecticut (Mullaney and Schwarz, 2013). This study was based on 10 years (1999-2009) of data and compared computed nitrogen loads from four gaging stations located along the Connecticut-Massachusetts border to the total nitrogen load computed from gages (and estimates) within Connecticut. As Connecticut continues to achieve greater nitrogen reductions at its WWTPs, the load from Massachusetts and other upstream states (New Hampshire and Vermont) consequently becomes a greater portion of the load and warrants full attention. In addition, very little to no attenuation occurs in the Connecticut River (Smith et al. 2008) so this entire total nitrogen load from upper basin states is essentially transported directly to LIS.

We would also like to take this opportunity to call attention to EPA's effort to advance a nitrogen reduction strategy for LIS (see December 23, 2015 letter from the EPA Regional Administrator). You may already be aware of this effort as EPA recently accepted technical comments from stakeholders for Subtasks F & G (Application of Technical Approach for Establishing Nitrogen Thresholds and Allowable Loads for Three LIS Watershed Groupings: Embayments, Large Riverine Systems, and Western LIS). As noted in CTDEEP's comment letter " We continue to support moving all three watershed groupings forward simultaneously and anticipate that any further work with these initial thresholds will include all three watershed groupings".

We feel this permit is an important step to advance the implementation of strategic nitrogen reductions throughout the LIS watershed and to demonstrate EPA' s commitment to lead through example. The inclusion of a "benchmark" in a National Pollutant Discharge Elimination System (NPDES) permit following the collection of 16 years of data is inadequate. CTDEEP notes that EPA took 12 years to issue a draft discharge permit for the Springfield WWTF. The permittee has demonstrated the ability to meet a certain nitrogen discharge. Therefore, it is appropriate for EPA to require a hard nitrogen load **limit** ofno more than 1,648 pounds/day in Section I.A.I of Springfield's NPDES permit. We formally request that the final permit include an enforceable nitrogen permit limit in Section I.A.I.

Combined Sewer Overflows

We note that in regard to Combined Sewer Overflows (CSOs), EPA merged the formerly separate NPDES permits for the WWTP and CSOs. We understand that an Administrative Order (EPA AO 14-007) to reduce CSOs was executed in September 2014. We also note that the Integrated Wastewater Plan (IWP) submitted in April 2014, which updates the May 2012 Final CSO Long Term Control Plan, has not been approved by EPA.

One of the conditions for the CSOs is that the Nine Minimum Controls be implemented, which includes maximizing combined flows to the WWTP. However, the April 2014 IWP does not adequately address how combined flows will be maximized to the WWTP in order to reduce CSO discharge volume. How much additional combined flow will the upgrade of the York Street Pump Station and Connecticut River Crossing pipes convey to the WWTP? How much will the annual CSO discharge volume will be reduced as a result of these efforts?

Co-Permittees

Additionally, EPA is adding six co-permittees to the draft permit. The towns of Agawam, Longmeadow, East Longmeadow , Ludlow, West Springfield and Wilbraham, Massachusetts own and operate sanitary wastewater collection systems that discharge flows to the Springfield Regional WWTP for treatment. Chicopee was not added to the permit because less than 1,000 residents in the Town of Chicopee are served by sewers discharging to the system. These municipalities are co-permittees for certain activities pertaining to proper operation and maintenance of their respective collection systems. How will the EPA and Springfield ensure that these towns will properly maintain their systems? Are these towns conducting any projects to reduce infiltration and/or inflow? How will EPA through the permit achieve reductions in wet weather flows and CSO discharges?

Public Hearing

CTDEEP supports the Connecticut Fund for the Environment's request (see CFE comment letter dated February 7, 2018) for a public hearing.

In closing, we trust that US EPA will fully and carefully consider our comments and revise the permit accordingly.

As always we are available to meet with the parties to discuss our comments and achieve our common goal of providing the best possible protection for the environment.

Sincerely,

Denise Ruzicka

Denise Ruzicka, P.E.
Director, Water Planning and Management Division
Bureau of Land Protection and Water Reuse

cc. L. Hamjian, EPA Region I
D. Ferris, MADEP
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Connecticut River Conservancy

Clean water. Healthy habitat. Thriving communities.

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February 12, 2018

Meridith Timony
U.S. EPA – Region 1
5 Post Office Square, Suite 100
Boston MA 02109-3912

Subject: Springfield Regional Wastewater Treatment Facility draft NPDES Permit
Permit Number: MA0101613, Public notice MA-004-18
Replaces permit MA010331

Dear Ms. Timony,

I am submitting comments on the draft National Pollutant Discharge Elimination System (NPDES) permit for the Springfield Water and Sewer Commission's (SWSC's) Regional Wastewater Treatment Plant (WWTP) on behalf of the Connecticut River Watershed Council, now doing business as the Connecticut River Conservancy. The Connecticut River, an American Heritage River and America's only National Blueway, is a regional resource that merits the highest level of protection. Designed to fully treat an average flow of 67 million gallons per day (MGD), the SWSC facility is the largest wastewater treatment facility in the Massachusetts portion of the Connecticut River watershed. The Connecticut River downstream of the Holyoke Dam to the Connecticut state border is listed as an impaired water body due to priority organics, pathogens, and total suspended solids. CRC is particularly interested in improving water quality in the Connecticut River so that it can support existing primary and secondary contact uses, even during wet weather. CRC believes that the Connecticut River can meet Class B water quality during wet weather and be made safe for swimming, if state and federal regulators work aggressively with other stakeholders to ensure compliance with Clean Water Act goals. CRC has also been following the work of the Long Island Sound TMDL workgroup to reduce nutrient discharges into Long Island Sound.

This draft permit combines two permits into one, replacing the existing permit for the WWTP (MA0101613) last issued in 2000 and the CSO permit (MA 010331) last issued in 2009. On May 24, 2016, the Connecticut Fund for the Environment requested that EPA modify, revoke and re-issue, or terminate these NPDES permits. CRC, as CRWC, signed on in support. In this draft permit, EPA has finally moved to update a permit that is 17 years old, and has been administratively continued for 12 years.

Our comments are below.

1. The protection of existing uses is required under 40 CFR 131.12(a)(1). Below is our understanding of existing uses in the area affected by the SWSC system.
    - Medina Street Boat ramp – located just upstream of the confluence with the Chicopee River. A popular launching point for motor boats, especially in May and June.

- Chicopee River confluence – a popular 24-hr/day fishing location during migratory fish season.
- Pioneer Valley Riverfront Club – youth and adult rowing programs, dragon boating, running and biking. See http://www.pvriverfront.org/
- West Springfield boat ramp – new cartop boat ramp installed in the last 10 years.
- Bondi's Island Boat Ramp – boat ramp located just upstream of the WWTP.
- Pynchon Point – cartop access located just downstream of the confluence with the Westfield River.
- Springfield Yacht Club – located in Agawam, providing boat slips for motor boats and sailboats. See https://www.sycc.website/ .
- Pioneer Valley Yacht Club – located in Longmeadow, providing boat slips for motor boats, sailboats, and rowing access. See http://www.ourpvyc.net/ .
- Riverfront Park and Fannie Stebbins Wildlife Refuge – Longmeadow public boat access, trails, and nature area that is now part of the Silvio Conte National Wildlife Refuge
- Bike paths along the CT River in Springfield and Agawam – ideally, people use the riverfront area in Springfield and Agawam for recreation, although it gets some amount of homeless housing activity. People fish from the banks right next to CSO outfalls and where the Mill River discharges into the CT River.
- Thompsonville Boat Ramp in Connecticut – improved boat ramp for all types of craft, located a couple miles downstream of the MA/CT state line.

2. This section of the river, though urbanized, also contains important fish and wildlife habitat. Many migratory fish pass by the section of Connecticut River affected by the WWTP and CSOs on their way upstream from Long Island Sound, either on their way to the Westfield River, the lower Chicopee River, or the Connecticut River to the fish lift at the Holyoke Dam. These fish include the endangered shortnose sturgeon. In 2017, migratory fish numbers that passed above Holyoke are as follows: 11 Atlantic salmon; 536,670 American shad; 875 blueback herring; 451 striped bass; 85 federally endangered shortnose sturgeon; 740 gizzard shad; 21,526 sea lamprey; and 17,037 American eels. In 2017, 6,000 shad; 5 Atlantic salmon; 5 river herring; and 249 sea lamprey were counted at the fish ladder on the lowermost dam on the Westfield River.

3. CRC supports the inclusion of co-permittees in this permit, the towns of Agawam, East Longmeadow, Longmeadow, Ludlow, West Springfield, and Wilbraham.

4. CRC is glad that the permit has finally been updated to include a pathogen limit based on *E. coli* levels, rather than fecal coliform.

5. CRC supports the increased frequency of sampling of nitrogen compounds from monthly to weekly.

6. CRC recommends that total phosphorus sampling be required as part of this permit. Eurasian water milfoil is present in the Connecticut portion of the Connecticut River. Understanding both the phosphorus and nitrogen inputs in the Connecticut River is important to understanding the spread of weeds like milfoil, as well as cyanobacteria outbreaks, if and when they occur.

7. Section I.B.3.b of the draft permit now requires that CSO structures and regulators be inspected once per month, down from twice weekly. Holyoke and Chicopee are required to do monthly

inspection of their CSO structures also. CRC recommends the frequency be appropriate for finding and fixing problems that arise. We note that twice weekly may be burdensome, but once a month may not be often enough.

8. Section I.B.3.d prohibits dry weather overflows. The previous CSO permit defined “dry weather” as less than 0.1 inch of precipitation or snowmelt in a calendar day. CRC recommends that a definition of dry weather be re-instated in the final permit.

9. Section I.B.3.g requires a public notification plan. CRC notes that none of the CSO communities along the Connecticut River in Massachusetts appear to be doing any kind of public notification, despite permit requirements. We have been supportive of a sewage spill public notification bill going through the Massachusetts legislature. The proposed notification in the draft permit seems potentially unrealistic, given the challenge of having accurate data on when CSOs are discharging. We also think bypass flows and blended flows also be part of public notification. We’d be amenable to an automated notification built into the SWSC website, or a CT River centralized website, that would predict, based on rainfall data, where in the system there is likely to be a CSO activation (Chicopee River, Mill River, north/south CT River mainstem, and on the Bondis Island side). Making a table available to the public like that in Attachment D to the Fact Sheet (along with information on CSO outfall locations), would also be very helpful.

10. Section I.B.3.e requires National Weather Service precipitation data be recorded for each CSO discharge event. This information should also be included in the annual CSO report required in draft permit Section I.B.4 and the DMR data required in draft permit Section I.B.5.a.

11. Section I.D.4 and I.D.5 requires a collection system map and a collection system operation and maintenance plan, respectively, and CRC thinks the requirement is appropriate.

12. Section I.G includes some new industrial pretreatment program requirements, of which we are supportive.

13. Section I.H. includes special conditions for nitrogen, which is new to this permit. The draft permit proposes an annual average mass discharge of total nitrogen capped at the existing average mass loading of 2,279 lbs/day. The Fact Sheet also provides two other alternatives for Total Nitrogen Optimization Benchmarks, based on a total nitrogen (TN) concentration benchmark of 8 mg/L, one including a loading benchmark based on existing flows, and one with no loading benchmark. CRC has discussed these three options with the SWSC and our understanding is that they prefer Alternative 2, and feel that they can meet a concentration benchmark of 8 mg/L. Based on Attachment H to the Fact Sheet, the TMDL based on 2004-2005 used data from two years when the plant was discharging TN at concentrations between 0.988 mg/L (this seems wrong) and 7.29 mg/L. We aren’t sure why, if Springfield has been doing N optimization, the concentrations have been consistently higher during the last several years.

    The draft permit proposal of a loading benchmark of 2,279 lbs/day based on existing loading values is consistent with the way EPA has set Total Nitrogen limits for other NPDES permits in the Massachusetts part of the Connecticut River watershed. We looked at the nitrogen general permit in Connecticut, and see that the Hartford MDC facility, which has a design capacity of 80 MGD (20% larger than Springfield), has a limit of 2,377 lbs/day (only 4 % higher than the proposed limit for Springfield). This amounts to a TN concentration of 3.56 mg/L if you use the design flow of 80 MGD.

CRC notes that using existing flow to set limits is inconsistent with the approach EPA uses to establish loading values in all permits, such as BOD and TSS and also the "reasonable potential analysis for metals (Table 2 in the Fact Sheet). In this permit, they are all based on the design flow of 67 MGD.

CRC also notes that one phase in Springfield's Integrated Wastewater Plan is to provide 62 MGD pumping capacity at the York Street pump station and a new 48-inch diameter river crossing from the collection system to the WWTP, new storage, and conveyance for relief of the Connecticut River interceptor. If the end result of this is a higher capacity to treat larger volumes of wastewater, and EPA and MassDEP approved of this plan, then SWSC should not necessarily be penalized for treating extra volumes and not meeting TN targets based on the previous average flow of the plant.

If a loading value is calculated using the design flow of 67 MGD and a concentration of 8 mg/L, the total nitrogen would be 4,470 lbs/day. Should Springfield's flow increase, the permit would allow an unreasonably high TN loading amount, and for this reason, CRC does not support Alternative 2. Attachment H shows that between 2001 and 2016, the average total nitrogen concentration was 5.46 mg/L, and varied quite a bit from 0 (not a realistic number) to 15.23 mg/L. SWSC would seemingly not be able to meet an enforceable limit based on a 8 mg/L concentration limit consistently. Increasing the sampling from monthly to weekly will allow for better understanding of the performance, which emphasizes again that this permit should have been updated long ago.

CRC recommendation: CRC requests that EPA set an enforceable permit limit that is consistent with anti-backsliding provisions and is based on the design flow of the plant. We recommend that the average TN treatment performance of the facility over the past 15 years be used (5.5 or rounded up to 6 mg/L) to calculate a loading value of 3,073 lbs/day or 3,353 lbs/day, respectively. Then, subtract out a 25% reduction to be somewhat consistent with the approach of the current TMDL. This would mean a loading of 2,305 lbs/day (based on 5.5 mg/L) or 2,514 (based on 6 mg/L). Under current flow rates, the facility would seemingly have no problem meeting this limit. Under increased flows, the facility would also typically be able to meet this limit, when flows and concentrations are averaged over the course of the year. We believe this approach is consistent with the 2015 Long Island Sound Nitrogen Reduction Strategy -- capping WWTPs at or near current total nitrogen loads, yet also sensitive to the SWSC's plans to be sending and treating additional sewage volumes to the WWTP. Future iterations of the permit will have the benefit of more data and a better understanding of nutrient loadings under the Nutrient Reduction Strategy.

14. We have several comments on the CSO overflow events and volumes shown in Attachment D. To start, we are assuming that the volumes for 2016 are an order of magnitude wrong, and were not properly converted to the 1,000's of gallons that the rest of the table was based on. We also recognize that estimation of CSO discharges is an imperfect science.

    Construction to reduce discharges from the Mill River CSOs was completed in 2003. In 2000, the draft LTCP showed in Table 5-3 that the Mill River CSOs were discharging 134 times in a typical year with a volume of 61.21 million gallons (MG). Springfield's 2014 Integrated Wastewater Plan in Vol 1 appendix B indicates that the post-construction baseline activation frequency (based on 1976 as a typical year) is 15 times with a volume of 1.1 MG. Attachment D of the Fact Sheet indicates the Mill River system has been, in reality, discharging between 47-113 times per year, at a volume of 3.6-29.1 MG between 2012 and 2016. The latter year was one of the most severe drought years since the 1960's, and even then, annual discharge volumes were 300% more than designed. Improvement has been made, but not nearly as much as what was anticipated.

Construction to reduce discharges from the Chicopee River CSOs was completed in 2009. In 2000, the draft LTCP showed in Table 5-3 that the Chicopee River CSOs were discharging 92 times in a typical year with a volume of 22.55 MG. Springfield's 2014 Integrated Wastewater Plan in Volume 1 Appendix B indicates that the post-construction baseline activation frequency (based on 1976 as a typical year) is 3 times with a volume of 0.31 MG. Attachment D of the Fact Sheet indicates the Chicopee River system has, in reality, been discharging 32-82 times per year, at a volume of 1.9-11 MG between 2012 and 2016. The latter year was one of the most severe drought years since the 1960's, and even then, annual discharge volumes were 500% more than designed. Improvement has been made, but not nearly as much as what was anticipated.

Unless the Mill River and Chicopee River CSO abatement projects were not actually constructed as designed, it is evident that using 1976 as the typical precipitation year is a mistake. CRC implores that EPA and DEP abandon the use of 1976 as the "typical year" in projects from this point forward, and use modern day climate data and climate predictions to design CSO projects.

CRC appreciates the opportunity to provide comments on the draft permit. I can be reached at adonlon@ctriver.org or (413) 772-2020 x.205.

Sincerely,

Andrea F. Donlon

Andrea F. Donlon
River Steward

Cc: Brian Harrington, MassDEP
Denise Ruzicka, CT DEEP
Bill Fuqua, SWSC
Jack Looney, Connecticut Fund for the Environment, Inc.

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April 27, 2018

Meridith Timony
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5 Post Office Square, Suite 100
Boston, MA 02109-3912

Clair Golden
MA Department of Environmental Protection
205B Lowell Street
Wilmington, MA 01887

RE: Draft Springfield Regional Wastewater Treatment Plant and CSO discharge permit number (MA0101613)

Dear Ms. Timony and Ms. Golden:

The Connecticut Department of Energy and Environmental Protection (CTDEEP) is providing additional comment on the draft NPDES permit for the Springfield Regional wastewater treatment plant (WWTP) and combined sewer outfall (CSO) discharges. This letter supplements the February 7, 2018 comment letter and written testimony that we submitted into the record at the April 24, 2018 public hearing:

1. Mr. Joshua Schimmel, Executive Director of the Springfield Water & Sewer Commission (SWSC), commented at the public meeting before the hearing on Tuesday night that Springfield cannot implement as much CSO reduction work as communities in Connecticut, because Massachusetts does not have the same funding opportunities for wastewater improvement projects that are available to Connecticut. He specifically citing our 50% grant for CSO projects.

   We wish to note that communities like Hartford are similar in size and economic condition to Springfield. If we compare the portion of project costs that are not subsidized by grants, the Metropolitan District (MDC) has spent over $320 million in the last five years and is expected to bid $190 million in new CSO contracts in the next twelve calendar months. Complete implementation of the TMDL by 2026 is expected to result in MDC paying for $1.5 billion of the overall $2.1 billion cost; compared to the $100 million dollars that Springfield has spent to date and the additional $183 million that is proposed for CSO control in the Connecticut River in the 2014 Integrated Wastewater Plan.

   Also, the LTCP for MDC provides for the elimination of all CSO discharges in a typical year by the year 2029. This represents a reduction of one billion gallons of CSO discharges in a typical year. Meanwhile, it appears that 59 million gallons per year will continue to be discharged from Springfield's CSOs in a typical year after the last CSO project is completed in 2031. This demonstrates that Springfield is in no way doing an appropriate or commensurate amount of CSO reduction activities. The Environmental Protection Agency (EPA) must require Springfield to do more.

2. We request that the NPDES permit require that Springfield's CSOs are tested for nitrogen on a recurring basis. The amount of currently unaccounted-for nitrogen loading to the Connecticut River and Long Island Sound (LIS) attributable to CSOs and other bypasses must be measured, recorded and annually reported through a permit condition.

3. Due to the direct impact on the health of the public recreating and using the Connecticut River, EPA must protect our citizens by inserting into the NPDES permit required notification to Connecticut residents within two hours whenever any of the Springfield CSOs or other bypasses are activated. Notification based on predictive rainfall modeling would be sufficient. In addition, SWSC must be required to notify the CTDEEP when any bypasses occur including CSOs which reach the CT River due to the adverse impact on Connecticut Water Quality during such events. Timely notification is critical in order to protect public health through proper notification to the public.

4. We are concerned about the resistance the SWSC has raised regarding the reclassification of OF-42 as a CSO. If OF-42 is not a true CSO as Mr. Schimmel suggests in his February 9, 2018 comment letter, then this is an unauthorized plant bypass which cannot be permitted and must be treated as a violation when activated. Additionally, we request that CTDEEP be notified whenever this overflow is activated.

5. Finally, we wish to strongly reiterate our demand that this NPDES permit contain an enforceable nitrogen load limit of 1,648 lbs/day in the table on Page 4, Section I.A.1. According to the LIS TMDL, "The enforceable mechanism to ensure reductions are attained will be state and federal permitting programs." Note the imperative words of "enforceable mechanism".

   Furthermore, the LIS TMDL states that concentration limits are not acceptable for tracking nitrogen. Note the following language taken directly from the LIS TMDL:

   "CWA Section 303(d) requires the establishment ofTMDLs for pollutants that will result in the attainment of water quality standards. As the term implies, TMDLs are often expressed as maximum daily loads. However, as specified in 40 CFR 130.2(1), TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measures. As presented in Section V.C., nitrogen loadings throughout the year contribute to the pool of nitrogen available for uptake by phytoplankton. Hypoxia resulting from the ultimate decay of that phytoplankton is not sensitive to daily or short term nitrogen loadings. Daily load allocations are not necessary to ensure that standards are met. Instead, DO levels are a function of annual loading rates. While hypoxia generally occurs from June through September, nitrogen loadings throughout the year contribute to the pool of nitrogen available for uptake for phytoplankton. The LIS 3.0 model did not show a strong relationship between hypoxia and the seasonality of nitrogen loads to Long Island Sound that would warrant special attention to seasonal management of nitrogen. This is because algal growth occurs over seasonal and annual cycles where the total pool of nitrogen available is the critical factor. This supports the use of a maximum annual load used in this TMDL, rather than seasonal or daily load limits. Therefore, the TMDL/WLA[Waste Load Allocation]/LA [Load Allocation] is presented as an annual load in tons per year."

Therefore, based upon the LIS TDML, only a load limit for nitrogen is acceptable. A concentration limit would not be consistent with the intent of the LIS TMDL. Failure of the Springfield NPDES permit to contain a load amount for nitrogen is therefore, inconsistent with the established LIS TMDL.

As you know we are always willing to meet and discuss these issues further. Thank you for the opportunity to comment on this draft NPDES permit.

Sincerely,

Denise Ruzicka

Denise Ruzicka, P.E.
Director, Water Planning and Management Division
Bureau of Land Protection and Water Reuse

cc. L. Hamjian, EPA Region I
D. Ferris, MADEP
J. Schimmel, Springfield Water & Sewer Commission
S. Sullivan, NEIWPCC
M. Tedesco, EPA LISS Office
M. Garren, EPA Region I

February 7, 2018

Via E-mail (Timony.meridith@Epa.gov) and First Class Mail

Alexandra Dapolito Dunn, Regional Administrator
U.S. EPA
Region 1
5 Post Office Square
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Boston, MA 02109-3912

RE: Draft NPDES PERMIT for the Springfield Water and Sewer Commission
Permit Number; MA0101613; Public Notice Number: MA-007-18

Dear Regional Administrator Dunn,

The Connecticut Fund for the Environment and its bi-state programs Save the Sound and The Long Island Sound Soundkeeper, submit the following comments on the draft National Pollutant Discharge Elimination System (NPDES) Permit for the Springfield Regional Waste Water Treatment Facility (SWWTF) and 24 Combined Sewer Overflow (CSO) discharges at 24 CSO outfall locations.

The draft permit integrates the Springfield Water and Sewer Commission's (SWSC) two existing permits for the publically owned treatment facility at Bondi Island and for 25 CSO outfalls in Springfield and Agawam that discharge into the Connecticut, Chicopee and Mill Rivers into a single permit. The draft permit replaces the existing permit for the SWWTF issued on December 8, 2000, which has been administratively continued without modification for the past twelve years, and the existing CSO outfalls permit issued in November, 2009 and administratively continued on September 15, 2014. The draft permit also includes as co-permittees the six towns that operate sanitary waste water collection systems that discharge flows to the SWWTF.

The segments of the receiving waters in which the discharges occur have been designated by the Commonwealth of Massachusetts as a Class B water, warm water fishery, and, pursuant to Massachusetts Surface Water Quality Standards have the following uses: habitat for fish, other aquatic life, and wildlife; primary and secondary contact recreation; a source of public watersupply (where designated and with appropriate treatment); suitable for irrigation and other agricultural uses and compatible for cooling and process use; and, have consistently good aesthetic value. These segments of the receiving waters are identified in the Massachusetts Surface Water Quality Standards with a CSO designator. The CSO designator for these waters indicates that these waters are impacted by the discharge of combined sewer overflows. Furthermore, the 2014 final Massachusetts Integrated List of Waters lists the specific segments of the Connecticut River where the WWTF discharges and the Connecticut, Mill and Chicopee Rivers where CSO outfalls are located as requiring a TMDL for impairments caused by E. coli and fecal coliform.

Specific Comments:

- In light of the descriptions and designations of the receiving waters for these permitted discharges and the listing of segments of the receiving waters into which CSO outfalls discharge as requiring a TMDL for bacterial pollutants associated with CSOs, it is beyond belief that during the past two decades, EPA has not required elimination or at least a reduction in the number of CSO outfalls impacting these waters. The continued permitting of this number of CSO outfalls for another permit term is unconscionable. The number of permitted CSO outfalls should be extremely limited in light of the designated uses of these surface waters.

- The inclusion of communities that contribute sanitary waste water flows to the treatment facility as co-permittees is a welcome modification to this permit and we believe it will enhance compliance and enforcement of the permit.

- Discharges from Springfield add to the nitrogen load in Long Island Sound and contribute to water quality violations in the Sound. On December 23, 2015, the administrators of EPA Regions 1 and 2 issued the *Long Island Sound Nitrogen Reduction Strategy* (the Nitrogen Strategy) in the form of a letter with attachments addressed to the Environmental Protection Commissioners of the states of New Hampshire, Vermont, Connecticut and New York and the Commonwealth of Massachusetts. The Nitrogen Strategy acknowledges the impact of nitrogen discharged from upstream states has on the Dissolved Oxygen crisis in Long Island Sound and its impact on water quality standards for the Sound. Incredibly, the Long Island Sound nitrogen TMDL was not considered in the waterbody assessment for the receiving waters. The Clean Water Act grants EPA the authority to require conditions in NPDES permits which ensure compliance with the water quality standards of any other state.[1] Furthermore, in light of the First Circuit Court of Appeals decision in *Upper Blackstone Water Pollution District v. EPA,* 690 F. 3d 9 (1st Cir. 2012) *cert. denied,* 133 S. Ct. 2382 (2013), EPA has the authority to require permit conditions that comply with water quality standards of downstream states. The impact to Long Island Sound from the nitrogen load from the discharges in this proposed permit must be taken into consideration by EPA.

[1] Clean Water Act § 401, 33 U.S.C. § 1341(a).

- The Permit Fact Sheet indicates that in 2004 – 2005 the SWWTF was meeting the Connecticut Department of Energy and Environmental Protection's TMDL Waste Load Allocation (WLA) 25% aggregate reduction from baseline loadings to the Connecticut River above the Connecticut-Massachusetts border for nitrogen loading from out-of-basin sources. The data shows that SWWTF is no longer meeting that reduction goal. Is this the result of increased development in the area served by the SWWTF?

- The proposed new nitrogen loading discussed in the Factsheet shifts from a daily load limit for nitrogen to an annual average load limit. Did EPA consider the impact of this change to the Long Island Sound especially in the months of April through September when hypoxia occurs in the Sound?

- Since the issuance of the 2000 NPDES permit for Bondi Island and the 2009 reissuance of the CSO permit, several studies and reports including, but not limited to, the December 23, 2015 *Long Island Sound Nitrogen Reduction Strategy* issued by the administrators of EPA Region 1 and Region 2, and the New England Interstate Water Pollution Control Commission's (NEIWPCC) report entitled, *Watershed Synthesis Section: A Preliminary and Qualitative Evaluation of the Adequacy of Current Stormwater and Nonpoint Source Nitrogen Control Efforts in Achieving the 2000 Long Island Sound Total Maximum Daily Load for Dissolved Oxygen, August 2014,* which clearly demonstrate that the nitrogen discharges from the wastewater treatment plant, as well as nitrogen from the CSOs, are causing or contributing to water quality violations in Long Island Sound and will continue to do so, even if and when all of the remaining actions to implement the 2000 TMDL are taken. Bacteria from CSOs are also causing and contributing to water quality violations in the Connecticut River, both in Massachusetts and in Connecticut. Were the results of these studies and reports considered in the preparing these draft permits?

- The draft permit does not contain an enforceable limit for nitrogen. Rather, it proposes continued optimization to meet a benchmark based on the current annual average Total Nitrogen load of 2,279 lbs./day. An enforceable limit must be included in the permit.

- Rather than require a nitrogen limit in the permit, EPA invites public comment on three options for addressing nitrogen discharges from the SWWTF. The three options are 1) the TN Optimization Requirement which requires optimization of operations at the facility to meet a benchmark based on the current average TN load of 2,279 lbs./day; 2) the Nitrogen Optimization Benchmark Alternative 1 which includes an annual average concentration based optimization benchmark of 8 mg/l combined with a higher annual mass based optimization benchmark of 2,534 lbs/day to provide Springfield with flexibility for future growth; and 3) Nitrogen Optimization Benchmark Alternative 2 with an annual average concentration benchmark of 8 mg/l without a specific base load benchmark. The benchmarks in the draft permit and the other two alternatives are not acceptable. A benchmark is not an enforceable limit and, without a numerical limit, enforcement is impossible and there are no consequences for noncompliance. Although we agree that the further review of out-of-basin total nitrogen loads by EPA may require the incorporation of nitrogen limits in future permit modifications, nothing prevents EPA from proposing a nitrogen limit now– even the 8 mg/l that EPA believes that Springfield can currently attain- for purposes of enforcement and the fair and equal treatment of the regulated communities that currently operate under such permit limits.

The existing permit for the SWWTF at Bondi Island was issued on December 8, 2000, and was administratively continued by EPA in 2005 without an opportunity for public comment. In light of the passage of more than seventeen years since the issuance of the existing permit, it is imperative that members of the public in Massachusetts and Connecticut impacted by the discharge from the SWWTF have an adequate and reasonable opportunity to voice their concerns about this proposed permit. Therefore, Connecticut Fund for the Environment and its bi-state programs Save the Sound and The Long Island Sound Soundkeeper request that EPA hold a public hearing on this proposed permit.

Respectfully submitted,

Connecticut Fund for the Environment, Inc.
Save the Sound
William Lucey, Long Island Soundkeeper

BY:_______/s/_________________________
John M. Looney
Staff Attorney

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"),

City of Keene, New Hampshire

is authorized to discharge from the facility located at

Keene Wastewater Treatment Plant
420 Airport Road
Swanzey, NH 03446

to receiving water named

Ashuelot River

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

The municipalities of Marlborough and Swanzey are co-Permittees for Part B, Unauthorized Discharges; Part C, Operation and Maintenance, which include conditions regarding the operation and maintenance of the collection systems owned and operated by the Towns; and Part D, Alternate Power Source.

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the terms and conditions of Parts B, C, and D of this permit. The Permittee and each co-permittee are severally liable under Parts B, C, and D for their own activities and required reporting with respect to the portions of the collection system that they own or operate. They are not liable for violations of Parts B, C and D committed by others relative to the portions of the collection system owned and operated by others. Nor are they responsible for any reporting that is required of other Permittees under Parts B, C, and D. The responsible Town departments are:

Town of Marlborough	Town of Swanzey
Board of Selectmen	Swanzey Sewer Commission
P.O. Box 487	P.O. Box 10009
Marlborough, NH 03455	Swanzey, NH 03446

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 August 24, 2007.

[1] Pursuant to 40 Code of Federal Regulations (C.F.R.) § 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.

This permit consists of the cover page(s), **Part I**; **Attachment A** (Freshwater Acute Toxicity Test Procedure and Protocol, February 2011); **Attachment B** (Freshwater Chronic Toxicity Test Procedure and Protocol, March 2013); **Attachment C** (Reassessment of Technically Based Industrial Discharge Limits); **Attachment D** (NPDES Permit Requirement for Industrial Pretreatment Annual Report) and **Part II (**NPDES Part II Standard Conditions, April 2018).

Signed this day of , 2020.

____

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

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 sanitary and industrial wastewater through Outfall Serial Number 001 to the Ashuelot 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]	6.0 MGD [5]	---	---	Continuous	Recorder
Effluent Flow[5]	Report MGD	---	Report MGD	Continuous	Recorder
$CBOD_5$	25 mg/L 1252 lb/day	40 mg/L 2003 lb/day	45 mg/L 2253 lb/day	2/week	Composite
$CBOD_5$ Removal	≥ 85 %	---	---	---	Calculation
TSS	30 mg/L 1502 lb/day	45 mg/L 2253 lb/day	50 mg/L 2504 lb/day	2/week	Composite
TSS Removal	≥ 85 %	---	---	---	Calculation
pH Range[6]	6.5 - 8.0 S.U.			1/day	Grab
Escherichia coli [7]	126 E.coli/100 mL	---	406 E.coli/100 mL	3/week	Grab
Total Recoverable Aluminum	108 µg/L[8]	---	Report µg/L	2/month	Composite
Total Recoverable Copper	5.9 µg/L	---	7.9 µg/L	2/month	Composite
Total Recoverable Lead	1.1 µg/L	---	----	2/month	Composite
Total Recoverable Zinc	77 µg/L	---	77 µg/L	2/month	Composite
Dissolved Oxygen	≥ 7.0 mg/L as a daily minimum			1/day	Grab
Ammonia Nitrogen as N (June 1 - October 31)	2.1 mg/L 105 lb/day	---	3.1 mg/L 155 lb/day	2/week	Composite
Ammonia Nitrogen as N (November 1 - May 31)	9.9 mg/L 496 lb/day	---	Report mg/L Report lb/day	2/week	Composite

Effluent Characteristic	Effluent Limitation			Monitoring Requirements[1,2,3]	
	Average Monthly	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample Type[4]**
Total Kjeldahl Nitrogen[9]	Report mg/L	---	Report mg/L	1/week	Composite
Total Nitrate + Nitrite[9]	Report mg/L	---	Report mg/L	1/week	Composite
Rolling Average Total Nitrogen[9,10]	501 lb/day	---	---	1/week	Composite
Total Nitrogen[9,10]	Report mg/L Report lb/day	---	Report mg/L Report lb/day	1/week	Composite
Total Phosphorus (April 1 – October 31)	0.18 mg/L	---	Report mg/L	1/week	Composite
Total Phosphorus (November 1 – March 31)	1.0 mg/L	---	Report mg/L	1/week	Composite
Whole Effluent Toxicity (WET) Testing[11,12]					
LC_{50}	---	---	≥ 100 %	1/year	Composite
C-NOEC	---	---	≥ 50 %	1/year	Composite
Hardness	---	---	Report mg/L	1/year	Composite
Ammonia Nitrogen	---	---	Report mg/L	1/year	Composite
Total Aluminum	---	---	Report mg/L	1/year	Composite
Total Cadmium	---	---	Report mg/L	1/year	Composite
Total Copper	---	---	Report mg/L	1/year	Composite
Total Nickel	---	---	Report mg/L	1/year	Composite
Total Lead	---	---	Report mg/L	1/year	Composite
Total Zinc	---	---	Report mg/L	1/year	Composite
Total Organic Carbon	---	---	Report mg/L	1/year	Composite

Ambient Characteristic[14]	Reporting Requirements			Monitoring Requirements[1,2,3]	
	Average Monthly	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample Type[4]**
Hardness	---	---	Report mg/L	1/year	Grab
Ammonia Nitrogen	---	---	Report mg/L	1/year	Grab
Total Aluminum	---	---	Report mg/L	1/year	Grab
Total Cadmium	---	---	Report mg/L	1/year	Grab
Total Copper	---	---	Report mg/L	1/year	Grab
Total Nickel	---	---	Report mg/L	1/year	Grab
Total Lead	---	---	Report mg/L	1/year	Grab
Total Zinc	---	---	Report mg/L	1/year	Grab
Total Organic Carbon	---	---	Report mg/L	1/year	Grab
Dissolved Organic Carbon[13]	---	---	Report mg/L	1/year	Grab
pH[15]	---	---	Report S.U.	1/year	Grab
Temperature[15]	---	---	Report °C	1/year	Grab
Total Phosphorus[16] (April 1 - October 31)	---	---	Report mg/L	1/month	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

Footnotes:

1. Effluent samples shall be taken at a location that yields data representative of the discharge. 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. The Permittee shall report the results to the Environmental Protection Agency Region 1 (EPA) and the State of any additional testing above that required herein, if testing is in accordance with 40 C.F.R. § 136.

2. In accordance with 40 C.F.R. § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 C.F.R. Part 136 or required under 40 C.F.R. 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 C.F.R. Part 136 or required under 40 C.F.R. Chapter I, Subchapter N or O for the measured pollutant or pollutant parameter. 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), whichever is higher. Minimum levels may be obtained in several 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. Report annual average, monthly average, and the maximum daily flow in million gallons per day (MGD). The limit is an annual average, which shall be reported as a rolling average. The value 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.). See Part I.G.1 below for a provision to modify the pH range.

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

8. See Part I.G.2 for special condition related to aluminum compliance schedule.

9. Total Kjeldahl nitrogen, nitrite nitrogen, and nitrate nitrogen 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] * 8.345

10. The total nitrogen limit is an annual average mass-based limit (lb/day), which shall be reported as a rolling 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 of the previous eleven months.

    Report both the rolling annual average and the monthly average each month.

    See Part I.G.3 for special conditions related to nitrogen.

11. The Permittee shall conduct acute toxicity tests (LC50) and chronic toxicity tests (C-NOEC) in accordance with test procedures and protocols specified in **Attachment A and B** of this permit. LC50 and C-NOEC are defined in Part II.E. of this permit. The Permittee shall test the daphnid, *Ceriodaphnia dubia*, and the fathead minnow, *Pimephales promelas*. Toxicity test samples shall be collected and tests completed during the same week each time of calendar quarter ending September 30th. 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.

12. For Part I.A.1., Whole Effluent Toxicity Testing, the Permittee shall conduct the analyses specified in **Attachment A and B**, 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 and B**, Section IV., DILUTION WATER. Minimum levels and test methods are specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS.

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

14. For Part I.A.1., Ambient Characteristics, the Permittee shall conduct the analyses specified in **Attachment A and B**, 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 and B**. Minimum levels and test methods are specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS.

15. A pH and temperature measurement shall be taken of each receiving water sample at the time of collection for WET testing 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.

16. See Part I.G.4 for special conditions related to ambient phosphorus monitoring.

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 substances in kind or quantity that settle to form harmful benthic deposits; float as foam, debris, scum or other visible substances; produce odor, color, taste or turbidity that is not naturally occurring and would render the surface water unsuitable for its designated uses; result in the dominance of nuisance species; or interfere with recreational activities.

4. Tainting substances shall not be present in the discharge in concentrations that individually or in combination are detectable by taste and odor tests performed on the edible portions of aquatic organisms.

5. The discharge shall not result in toxic substances or chemical constituents in concentrations or combinations in the receiving water that injure or are inimical to plants, animals, humans or aquatic life; or persist in the environment or accumulate in aquatic organisms to levels that result in harmful concentrations in edible portions of fish, shellfish, other aquatic life, or wildlife that might consume aquatic life.

6. The discharge shall not result in benthic deposits that have a detrimental impact on the benthic community. The discharge shall not result in oil and grease, color, slicks, odors, or surface floating solids that would impair any existing or designated uses in the receiving water.

7. The discharge shall not result in an exceedance of the naturally occurring turbidity in the receiving water by more than 10 NTUs.

8. The Permittee must provide adequate notice to EPA-Region 1 and the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) of the following:

   a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to § 301 or § 306 of the Clean Water Act if it were directly discharging those pollutants or in a primary industry category (see 40 C.F.R. §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.

B. UNAUTHORIZED DISCHARGES

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 and shall be reported in accordance with Part D.1.e.(1) of the Standard Conditions of this permit (24-hour reporting).

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance (O&M) of the sewer system shall be in compliance with the Standard Conditions of Part II and the following terms and conditions. Each Permittee is required to complete the following activities for the collection system which it owns:

1. Maintenance Staff

   The Permittee and co-Permittees shall each 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 Collection System O&M Plan required pursuant to Section C.5. below.

2. Preventive Maintenance Program

   The Permittee and co-Permittees shall each 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 Collection System O&M Plan required pursuant to Section C.5. below.

3. Infiltration/Inflow

   The Permittee and co-Permittees shall each 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 Collection System O&M Plan required pursuant to Section C.5. below.

4. Collection System Mapping

   Within 30 months of the effective date of this permit, the Permittee and co-Permittees shall each prepare a map of the sewer collection system it owns (see page 1 of this permit for the effective date). The map shall be on a street map of the community, with sufficient detail and at a scale to allow easy interpretation. The collection system information shown on the map shall be based on current conditions and shall be kept up-to-date and available for review by federal, state, or local agencies. Such map(s) shall include, but not be limited to the following:

   a. All sanitary sewer lines and related manholes;

   b. All combined sewer lines, related manholes, and catch basins;

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

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

   e. All pump stations and force mains;

   f. The wastewater treatment facility(ies);

   g. All surface waters (labeled);

   h. Other major appurtenances such as inverted siphons and air release valves;

   i. A numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;

   j. The scale and a north arrow; and

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

5. Collection System O&M Plan

   The Permittee and co-Permittees shall each develop and implement a Collection System O&M Plan.

   a. Within six (6) months of the effective date of the permit, the Permittee and co-Permittees shall each submit to EPA and the State:

      (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; and
(3) A schedule for the development and implementation of the full Collection System O&M Plan including the elements in paragraphs b.1. through b.7 below.

b. The full Collection System O&M Plan shall be completed, implemented and submitted to EPA and the State within twenty-four (24) months from the effective date of this permit. The Plan shall include:

(1) The required submittal from paragraph 5.a. above, updated to reflect current information;
(2) A preventive maintenance and monitoring program for the collection system;
(3) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;
(4) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;
(5) 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;
(6) A description of the Permittee's and each co-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; and
(7) An educational public outreach program for all aspects of I/I control, particularly private inflow.
(8) An <u>Overflow Emergency Response Plan</u> to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the permit.

6. Annual Reporting Requirement

Prior to the implementation of the Collection System O&M Plan, the Permittee and co-Permittees shall each submit a summary report of all actions taken to minimize I/I during the previous calendar year to EPA and the NHDES by February 28th of each year.

Once the Collection System O&M Plan is implemented, the Permittee and co-Permittees shall each submit a summary report of activities related to the implementation of its Collection System O&M Plan during the previous calendar year. The report shall be submitted to EPA and the State annually by March 31st. The first annual report is due the first March 31st following submittal of the collection system O&M Plan required by Part I.C.5.b. of this permit. 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; and

f. If the monthly average annual flow exceeded 80 percent of the facility's 6.0 MGD design flow (4.8 MGD) for three consecutive months in the previous calendar year, 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.

D. ALTERNATE POWER SOURCE

In order to maintain compliance with the terms and conditions of this permit, the Permittee and co-Permittees shall each 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 AND PRETREATMENT PROGRAM

1. The Permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW Treatment Plant's Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. Within 90 days of the effective date of this permit, the Permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. As part of this evaluation, the Permittee shall assess how the POTW performs with respect to influent and effluent of pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the Permittee shall complete and submit the attached form (see **Attachment C –** Reassessment of Technically Based Industrial Discharge Limits) with the technical evaluation to assist in determining whether existing local limits

need to be revised. Justifications and conclusions should be based on actual plant data if available and should be included in the report. Should the evaluation reveal the need to revise local limits, the Permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval. The Permittee shall carry out the local limits revisions in accordance with EPA's Local Limit Development Guidance (July 2004).

2. The Permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the Permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 C.F.R. § 403. At a minimum, the Permittee must perform the following duties to properly implement the Industrial Pretreatment Program (IPP):

    a. Carry out inspection, surveillance, and monitoring procedures which will determine independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and adequate records shall be maintained.

    b. Issue or renew all necessary industrial user control mechanisms within 90 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.

    c. Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement.

    d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.

3. The Permittee shall provide the EPA and NHDES with an annual report describing the Permittee's pretreatment program activities for the twelve (12) month period ending 60 days prior to the due date in accordance with 403.12(i). The annual report shall be consistent with the format described in **Attachment D** (NPDES Permit Requirement for Industrial Pretreatment Annual Report) of this permit and shall be submitted no later than November 1 of each year.

4. The Permittee must obtain approval from EPA prior to making any significant changes to the IPP in accordance with 40 C.F.R. 403.18(c).

5. The Permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 C.F.R. § 405 et seq.

6. The Permittee must modify its pretreatment program, if necessary, to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the IPP. The Permittee must provide to EPA, in writing, within 180 days of this permit's effective date proposed changes, if applicable, to the Permittee's pretreatment program deemed necessary to

assure conformity with current Federal Regulations. At a minimum, the Permittee must address in its written submission the following areas: (1) Enforcement response plan; (2) revised sewer use ordinances; and (3) slug control evaluations. The Permittee shall implement these proposed changes pending EPA Region I's approval under 40 C.F.R. § 403.18. This submission is separate and distinct from any local limits analysis submission described in Part I.E.1.

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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 503 do not apply to facilities which dispose of sludge in a municipal solid waste landfill. 40 C.F.R. § 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 C.F.R. § 503.6.

5. The 40 C.F.R. § 503 requirements include the following elements:

    - General requirements
    - Pollutant limitations
    - Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
    - Management practices
    - Record keeping
    - Monitoring
    - Reporting

Which of the 40 C.F.R. § 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.[2]

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 C.F.R. § 503.8.

7. Under 40 C.F.R. § 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 C.F.R. § 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 § 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 C.F.R. § 503.9(r), for use or disposal, then the Permittee remains responsible to ensure that the applicable requirements in § 503 are met. 40 C.F.R. § 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 C.F.R. § 503 Subpart B.

8. The Permittee shall submit an annual report containing the information specified in the 40 C.F.R. § 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).

9. Compliance with the requirements of this permit or 40 C.F.R. § 503 shall not eliminate or modify the need to comply with applicable requirements under RSA 485-A and Env-Wq 800, New Hampshire Sludge Management Rules.

[2] This guidance document is available upon request from EPA Region 1 and may also be found at: http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf

G. SPECIAL CONDITIONS

1. pH

The pH range may be modified if the Permittee satisfies conditions set forth in Part I.I.5 below. Upon notification of an approval by NHDES, EPA will review and, if acceptable, will submit written notice to the Permittee of the permit change. The modified pH range will not be in effect until the Permittee receives written notice from EPA.

2. Aluminum

The new effluent limit for total aluminum shall be subject to a schedule of compliance whereby the limit takes effect three years after the effective date of the permit.[3] For the period starting on the effective date of this permit and ending three (3) years after the effective date, the Permittee shall report the monthly average and daily maximum aluminum concentration on the monthly DMR. After this initial three (3) year period, the Permittee shall comply with the monthly average total aluminum limit of 108 μg/L ("final aluminum effluent limit"). The Permittee shall submit an annual report due by January 15th of each of the first three (3) years of the permit that will detail its progress towards meeting the final aluminum effluent limit.

At a minimum, the Permittee shall include the following in the annual report:

a. An evaluation of all other potentially significant sources of aluminum in the sewer system and alternatives for minimizing these sources.

b. An evaluation of alternative modes of operation at the wastewater treatment facility in order to reduce the effluent levels of aluminum

If during the three-year period after the effective date of the permit, New Hampshire adopts revised aluminum criteria, but EPA has not yet approved such criteria, then the Permittee may request a permit modification, pursuant to 40 C.F.R. § 122.62(a)(3), for a further delay in the effective date of the final aluminum effluent limit. If new criteria are approved by EPA before the effective date of the final aluminum effluent limit, the Permittee may apply for a permit modification, pursuant to 40 C.F.R. § 122.62(a)(3), to revise the time to meet the final aluminum effluent limit and/or for revisions to the permit based on whether there is reasonable potential for the facility's aluminum discharge to cause or contribute to a violation of the newly approved aluminum criteria.

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3 The final effluent limit of 108 μg/l for aluminum may be modified prior to the end of the three-year compliance schedule if warranted by the new criteria and a reasonable potential analysis, and if consistent with anti-degradation requirements. Such a modification would not trigger anti-backsliding prohibitions, as reflected in CWA § 402(o) and 40 C.F.R. § 122.44(l), provided that such modification is finalized before the final limit takes effect.

3. Nitrogen

   a. Within **<u>one year of the effective date of the permit</u>**, the Permittee shall complete an evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen in order to minimize the annual average mass discharge of total nitrogen and submit a report to EPA and NHDES documenting this evaluation and presenting a description of recommended operational changes. The Permittee shall implement the recommended operational changes in order to minimize the discharge loading of nitrogen. The methods to be evaluated shall include, but are 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 report may be combined with the Permittees' annual nitrogen report under Part I.G.3.b, if both reports are submitted to EPA and NHDES by February 1st.

   b. The Permittee shall also submit an annual report to EPA and the NHDES, by February 1st 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 year. 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 also include all supporting data.

4. Phosphorus

   The Permittee shall develop and implement a sampling and analysis plan for biannually collecting monthly samples in the receiving water for total phosphorus at a location upstream of the facility's discharge. Samples shall be collected once per month, from April through October, every other calendar year starting on the calendar year following the date of permit issuance. Sampling shall be conducted on any calendar day that is preceded by at least 72 hours with less than or equal to 0.1 inches of cumulative rainfall. A sampling plan shall be submitted to EPA and the State at least three months prior to the first planned sampling date as part of a Quality Assurance Project Plan for review and State approval. For the years that monitoring is not required, the Permittee shall report NODI code "9" (conditional monitoring not required).

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 no later than the 15th day of the month electronically using NetDMR. 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. This includes the NHDES Monthly Operating Reports (MORs). *See* Part I.H.7. 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 particular report due date specified in this permit.

3. Submittal of Industrial User and Pretreatment Related Reports

   a. Prior to December 21, 2020, all reports and information required of the Permittee in the Industrial Users and Pretreatment Program section of this permit shall be submitted to the Pretreatment Coordinator in Region 1 EPA's Water Division. Starting on 21 December 2020these submittals must be done electronically as NetDMR attachments and/or using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at https://cdx.epa.gov/. These requests, reports and notices include:

      (1) Annual Pretreatment Reports,
      (2) Pretreatment Reports Reassessment of Technically Based Industrial Discharge Limits Form,
      (3) Revisions to Industrial Discharge Limits,
      (4) Report describing Pretreatment Program activities, and
      (5) Proposed changes to a Pretreatment Program

b. This information shall be submitted to EPA WD as a hard copy at the following address:

U.S. Environmental Protection Agency
Water Division
Regional Pretreatment Coordinator
5 Post Office Square - Suite 100 (06-03)
Boston, MA 02109-3912

4. 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/.

5. 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 the EPA 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.

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

6. Submittal of Reports to EPA Enforcement and Compliance Assurance Division (ECAD) in Hard Copy Form

a. The following notifications and reports shall be signed and dated originals, submitted as hard copy, with a cover letter describing the submission:

(1) Prior to 21 December 2020, written notifications required under Part II.B.4.c, for bypasses, and Part II.D.1.e, for sanitary sewer overflows (SSOs). Starting on 21 December 2020 such notifications must be done electronically using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at https://cdx.epa.gov/.
(2) Collection System Operation and Maintenance Plan (from co-Permittees)
(3) Report on annual activities related to O&M Plan (from co-Permittees)

b. This information shall be submitted to EPA ECAD at the following address:

U.S. Environmental Protection Agency
Enforcement and Compliance Assurance Division
Water Compliance Section
5 Post Office Square, Suite 100 (04-SMR)
Boston, MA 02109-3912

7. State Reporting

   Unless otherwise specified in this permit or by the State, duplicate signed copies of all reports, information, requests or notifications described in this permit, including the reports, information, requests or notifications described in Parts I.H.3 through I.H.6 shall also be submitted to the New Hampshire Department of Environmental Services, Water Division (NHDES–WD) electronically to the Permittee's assigned NPDES inspector or as hardcopy to the following address:

   New Hampshire Department of Environmental Services
   Water Division
   Wastewater Engineering Bureau
   29 Hazen Drive, P.O. Box 95
   Concord, New Hampshire 03302-0095

8. Verbal Reports and Verbal Notifications

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

   EPA ECAD at 617-918-1510
   and
   NHDES Assigned NPDES Inspector at 603-271-1494

I. STATE PERMIT CONDITIONS

1. The Permittee shall not at any time, either alone or in conjunction with any person or persons, cause directly or indirectly the discharge of waste into the said receiving water unless it has been treated in such a manner as will not lower the legislated water quality classification or interfere with the uses assigned to said water by the New Hampshire Legislature (RSA 485-A:12).

2. This NPDES discharge permit is issued by EPA under federal and state law. Upon final issuance by EPA, the New Hampshire Department of Environmental Services-Water Division (NHDES-WD) may adopt this permit, including all terms and conditions, as a state permit pursuant to RSA 485-A:13.

3. EPA shall have the right to enforce the terms and conditions of this permit pursuant to federal law and NHDES-WD shall have the right to enforce the permit pursuant to state law, if the permit is adopted. Any modification, suspension, or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of the permit as issued by the other agency.

4. Pursuant to New Hampshire Statute RSA 485-A13,I(c), any person responsible for a bypass or upset at a *wastewater facility* shall give immediate notice of a bypass or upset to all public or privately owned water systems drawing water from the same receiving water and located within 20 miles downstream of the point of discharge regardless of whether or not it is on the same receiving water or on another surface water to which the receiving water is tributary. Wastewater facility is defined at RSA 485-A:2XIX as the structures, equipment, and processes required to collect, convey, and treat domestic and industrial wastes, and dispose of the effluent and sludge. The Permittee shall maintain a list of persons, and their telephone numbers, who are to be notified immediately by telephone. In addition, written notification, which shall be postmarked within 3 days of the bypass or upset, shall be sent to such persons.

5. The pH range of 6.5 to 8.0 Standard Units (S.U.) must be achieved in the final effluent unless the Permittee can demonstrate to NHDES-WD: (1) that the range should be widened due to naturally occurring conditions in the receiving water or (2) that the naturally occurring receiving water pH is not significantly altered by the Permittee's discharge. The scope of any demonstration project must receive prior approval from NHDES-WD. In no case, shall the above procedure result in pH limits outside the range of 6.0 – 9.0 S.U., which is the federal effluent limitation guideline regulation for pH for secondary treatment and is found in 40 C.F.R. § 133.102(c).

6. Pursuant to New Hampshire Code of Administrative Rules, Env-Wq 703.07(a):

   a. Any person proposing to construct or modify any of the following shall submit an application for a sewer connection permit to the department:

      (1) Any extension of a collector or interceptor, whether public or private, regardless of flow;
      (2) Any wastewater connection or other discharge in excess of 5,000 gpd;
      (3) Any wastewater connection or other discharge to a WWTP operating in excess of 80 percent design flow capacity or design loading capacity based on actual average flow or loading for 3 consecutive months;
      (4) Any industrial wastewater connection or change in existing discharge of industrial wastewater, regardless of quality or quantity; and
      (5) Any sewage pumping station greater than 50 gpm or serving more than one building.
      (6) Any proposed sewer that serves more than one building or that requires a manhole at the connection.

7. For each new or increased discharge of industrial waste to the POTW, the Permittee shall submit, in accordance with Env-Wq 305.10(a) an "Industrial Wastewater Discharge Request."

8. Pursuant to Env-Wq 305.21, at a frequency no less than every five years, the Permittee shall submit to NHDES:

   a. A copy of its current sewer use ordinance if it has been revised without department approval subsequent to any previous submittal to the department or a certification that no changes have been made.

   b. A current list of all significant indirect dischargers to the POTW. At a minimum, the list shall include for each significant indirect discharger, its name and address, the name and daytime telephone number of a contact person, products manufactured, industrial processes used, existing pretreatment processes, and discharge permit status.

   c. A list of all permitted indirect dischargers; and

   d. A certification that the municipality is strictly enforcing its sewer use ordinance and all discharge permits it has issued.

9. When the effluent discharged for a period of three (3) consecutive months exceeds 80 percent of the 6.0 MGD design flow (4.8 MGD) or design loading capacity, the Permittee shall submit to the permitting authorities a projection of flows and loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans. Before the design flow will be reached, or whenever treatment necessary to achieve permit limits cannot be assured, the Permittee may be required to submit plans for facility improvements.

10. In accordance with Env-Wq 305.15(d), the Permittee shall not allocate or accept for treatment more than 90 percent of the headworks loading limits of its POTW.

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°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
Water Division
U.S. Environmental Protection Agency-New
England 5 Post Office Sq., Suite 100 (06-5)
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 (^oC)	20 ± 1^oC or 25 ± 1^oC
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	$\geq$ 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 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 (<u>PIMEPHALES</u> <u>PROMELAS</u>) 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

<u>LC50 Median Lethal Concentration (Determined at 48 Hours)</u>

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.

<u>No Observed Acute Effect Level (NOAEL)</u>

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

FRESHWATER CHRONIC TOXICITY TEST PROCEDURE AND PROTOCOL
USEPA Region 1

I. GENERAL REQUIREMENTS

The permittee shall be responsible for the conduct of acceptable chronic toxicity tests using three fresh samples collected during each test period. The following tests shall be performed as prescribed in Part 1 of the NPDES discharge permit in accordance with the appropriate test protocols described below. (Note: the permittee and testing laboratory should review the applicable permit to determine whether testing of one or both species is required).

- **Daphnid (<u>Ceriodaphnia</u> <u>dubia</u>) Survival and Reproduction Test.**

- **Fathead Minnow (<u>Pimephales</u> <u>promelas</u>) Larval Growth and Survival Test.**

Chronic toxicity data shall be reported as outlined in Section VIII.

II. METHODS

Methods to follow are those recommended by EPA in: <u>Short Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition. October 2002</u>. United States Environmental Protection Agency. Office of Water, Washington, D.C., EPA 821-R-02-013. The methods are available on-line at http://www.epa.gov/waterscience/WET/ . Exceptions and clarification are stated herein.

III. SAMPLE COLLECTION AND USE

A total of three fresh samples of effluent and receiving water are required for initiation and subsequent renewals of a freshwater, chronic, toxicity test. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. Fresh samples are recommended for use on test days 1, 3, and 5. However, provided a total of three samples are used for testing over the test period, an alternate sampling schedule is acceptable. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any hold time extension. All test samples collected may be used for 24, 48 and 72 hour renewals after initial use. All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6^{o} C.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol.

Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate prior to sample use for toxicity testing.

If any of the renewal samples are of sufficient potency to cause lethality to 50 percent or more of the test organisms in any of the test treatments for either species or, if the test fails to meet its permit limits, then chemical analysis for total metals (originally required for the initial sample only in Section VI) will be required on the renewal sample(s) as well.

IV. DILUTION WATER

Samples of receiving water must be collected from a location in the receiving water body 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. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2,Test Results & Permit Limits.

The test dilution water must be used to determine whether the test met the applicable TAC. When receiving water is used for test dilution, an additional control made up of standard laboratory water (0% effluent) is required. This control will be used to verify the health of the test organisms and evaluate to what extent, if any, the receiving water itself is responsible for any toxic response observed.

If dechlorination of a sample by the toxicity testing laboratory is necessary a "sodium thiosulfate" control, representing the concentration of sodium thiosulfate used to adequately dechlorinate the sample prior to toxicity testing, must be included in the test.

If the use of an alternate dilution water (ADW) is authorized, in addition to the ADW test control, the testing laboratory must, for the purpose of monitoring the receiving water, also run a receiving water control.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable an ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first is the case where repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use be made by the permittee and toxicity testing laboratory. The second is in the case where two of the most recent documented incidents of unacceptable site dilution water toxicity requires ADW use in future WET testing.

For the second case, written notification from the permittee requesting ADW use **and** written authorization from the permit issuing agency(s) is required **prior to** switching to a long-term use of ADW for the duration of the permit.

Written requests for use of ADW must be mailed with supporting documentation to the following addresses:

Director
Water Division
U.S. Environmental Protection Agency, Region 1
Five Post Office Square, Suite 100
Mail Code 06-5
Boston, MA 02109-3912

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
Five Post Office Square, Suite 100
Mail Code 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/enforcementandassistance/dmr.html for further important details on alternate dilution water substitution requests.

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

Method specific test conditions and TAC are to be followed and adhered to as specified in the method guidance document, EPA 821-R-02-013. If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.

V.1. Use of Reference Toxicity Testing

Reference toxicity test results and applicable control charts must be included in the toxicity testing report.

If reference toxicity test results fall outside the control limits established by the laboratory for a specific test endpoint, a reason or reasons for this excursion must be evaluated, correction made and reference toxicity tests rerun as necessary.

If a test endpoint value exceeds the control limits at a frequency of more than one out of twenty then causes for the reference toxicity test failure must be examined and if problems are identified corrective action taken. The reference toxicity test must be repeated during the same month in which the exceedance occurred.

If two consecutive reference toxicity tests fall outside control limits, the possible cause(s) for the exceedance must be examined, corrective actions taken and a repeat of the reference toxicity test must take place immediately. Actions taken to resolve the problem must be reported.

V.1.a. Use of Concurrent Reference Toxicity Testing

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall slightly outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall well outside the established **upper** control limits i.e. $\geq$3 standard deviations for IC25 values and $\geq$ two concentration intervals for NOECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

V.2. For the *C. dubia* test, the determination of TAC and formal statistical analyses must be performed using only the first three broods produced.

V.3. Test treatments must include 5 effluent concentrations and a dilution water control. An additional test treatment, at the permitted effluent concentration (% effluent), is required if it is not included in the dilution series.

VI. CHEMICAL ANALYSIS

As part of each toxicity test's daily renewal procedure, pH, specific conductance, dissolved oxygen (DO) and temperature must be measured at the beginning and end of each 24-hour period in each test treatment and the control(s).

The additional analysis that must be performed under this protocol is as specified and noted in the table below.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1, 4]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3, 4]	x		0.02
Alkalinity[4]	x	x	2.0
pH[4]	x	x	--
Specific Conductance[4]	x	x	--
Total Solids [6]	x		--
Total Dissolved Solids [6]	x		--
Ammonia[4]	x	x	0.1
Total Organic Carbon [6]	x	x	0.5
Total Metals [5]			
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
- USEPA 1983. Manual of Methods Analysis of Water and Wastes
  - -Method 330.5

3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing
4. Analysis is to be performed on samples and/or receiving water, as designated in the table above, from all three sampling events.
5. Analysis is to be performed on the initial sample(s) only unless the situation arises as stated in Section III, paragraph 4
6. Analysis to be performed on initial samples only

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

A concentration/response relationship evaluation is required for test endpoint determinations from both Hypothesis Testing and Point Estimate techniques. The test report is to include documentation of this evaluation in support of the endpoint values reported. The dose-response review must be performed as required in Section 10.2.6 of EPA-821-R-02-013. Guidance for this review can be found at http://water.epa.gov/scitech/methods/cwa/ . In most cases, the review will result in one of the following three conclusions: (1) Results are reliable and reportable; (2) Results are anomalous and require explanation; or (3) Results are inconclusive and a retest with fresh samples is required.

2. Test Variability (Test Sensitivity)

This review step is separate from the determination of whether a test meets or does not meet TAC. Within test variability is to be examined for the purpose of evaluating test sensitivity. This evaluation is to be performed for the sub-lethal hypothesis testing endpoints reproduction and growth as required by the permit. The test report is to include documentation of this evaluation to support that the endpoint values reported resulted from a toxicity test of adequate sensitivity. This evaluation must be performed as required in Section 10.2.8 of EPA-821-R-02-013.

To determine the adequacy of test sensitivity, USEPA requires the calculation of test percent minimum significant difference (PMSD) values. In cases where NOEC determinations are made based on a non-parametric technique, calculation of a test PMSD value**,** for the sole purpose of assessing test sensitivity, shall be calculated using a comparable parametric statistical analysis technique. The calculated test PMSD is then compared to the upper and lower PMSD bounds shown for freshwater tests in Section 10.2.8.3, p. 52, Table 6 of EPA-821-R-02-013. The comparison will yield one of the following determinations.

- The test PMSD exceeds the PMSD upper bound test variability criterion in Table 6, the test results are considered highly variable and the test may not be sensitive enough to determine the presence of toxicity at the permit limit concentration (PLC). If the test results indicate that the discharge is not toxic at the PLC, then the test is considered insufficiently sensitive and must be repeated within 30 days of the initial test completion using fresh samples. If the test results indicate that the discharge is toxic at the PLC, the test is considered acceptable and does not have to be repeated.

- The test PMSD falls below the PMSD lower bound test variability criterion in Table 6, the test is determined to be very sensitive. In order to determine which treatment(s) are statistically significant and which are not, for the purpose of reporting a NOEC, the relative percent difference (RPD) between the control and each treatment must be calculated and compared to the lower PMSD boundary. See *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program*, EPA 833-R-00-003, June 2002, Section 6.4.2. The following link: Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program can be used to locate the USEPA website containing this document. If the RPD for a treatment falls below the PMSD lower bound, the difference is considered statistically insignificant. If the RPD for a treatment is greater that the PMSD lower bound, then the treatment is considered statistically significant.

- The test PMSD falls within the PMSD upper and lower bounds in Table 6, the sub-lethal test endpoint values shall be reported as is.

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

Refer to general data analysis flowchart, EPA 821-R-02-013, page 43

For discussion on Hypothesis Testing, refer to EPA 821-R-02-013, Section 9.6

For discussion on Point Estimation Techniques, refer to EPA 821-R-02-013, Section 9.7

2. *Pimephales promelas*

Refer to survival hypothesis testing analysis flowchart, EPA 821-R-02-013, page 79

Refer to survival point estimate techniques flowchart, EPA 821-R-02-013, page 80

Refer to growth data statistical analysis flowchart, EPA 821-R-02-013, page 92

3. *Ceriodaphnia dubia*

Refer to survival data testing flowchart, EPA 821-R-02-013, page 168

Refer to reproduction data testing flowchart, EPA 821-R-02-013, page 173

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

- Test summary sheets (2007 DMR Attachment F) which includes:
    - Facility name
    - NPDES permit number
    - Outfall number
    - Sample type
    - Sampling method
    - Effluent TRC concentration
    - Dilution water used
    - Receiving water name and sampling location
    - Test type and species
    - Test start date
    - Effluent concentrations tested (%) and permit limit concentration
    - Applicable reference toxicity test date and whether acceptable or not
    - Age, age range and source of test organisms used for testing
    - Results of TAC review for all applicable controls
    - Test sensitivity evaluation results (test PMSD for growth and reproduction)
    - Permit limit and toxicity test results
    - Summary of test sensitivity and concentration response evaluation

In addition to the summary sheets the report must include:

- A brief description of sample collection procedures
- Chain of custody documentation including names of individuals collecting samples, times and dates of sample collection, sample locations, requested analysis and lab receipt with time and date received, lab receipt personnel and condition of samples upon receipt at the lab(s)
- Reference toxicity test control charts
- All sample chemical/physical data generated, including minimum limits (MLs) and analytical methods used
- All toxicity test raw data including daily ambient test conditions, toxicity test chemistry, sample dechlorination details as necessary, bench sheets and statistical analysis
- A discussion of any deviations from test conditions
- Any further discussion of reported test results, statistical analysis and concentration-response relationship and test sensitivity review per species per endpoint

EPA - New England

Reassessment of Technically Based Industrial Discharge Limits

Under 40 CFR §122.21(j)(4), all Publicly Owned Treatment Works (POTWs) with approved Industrial Pretreatment Programs (IPPs) shall provide the following information to the Director: a written evaluation of the need to revise local industrial discharge limits under 40 CFR §403.5(c)(1).

Below is a form designed by the U.S. Environmental Protection Agency (EPA - New England) to assist POTWs with approved IPPs in evaluating whether their existing Technically Based Local Limits (TBLLs) need to be recalculated. The form allows the permittee and EPA to evaluate and compare pertinent information used in previous TBLLs calculations against present conditions at the POTW.

Please read direction below before filling out form.

ITEM I.

* In Column (1), list what your POTW's influent flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present influent flow rate. Your current flow rate should be calculated using the POTW's average daily flow rate from the previous 12 months.

* In Column (1) list what your POTW's SIU flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present SIU flow rate.

* In Column (1), list what dilution ratio and/or 7Q10 value was used in your old/expired NPDES permit. In Column (2), list what dilution ration and/or 7Q10 value is presently being used in your new/reissued NPDES permit.

The 7Q10 value is the lowest seven day average flow rate, in the river, over a ten year period. The 7Q10 value and/or dilution ratio used by EPA in your new NPDES permit can be found in your NPDES permit "Fact Sheet."

* In Column (1), list the safety factor, if any, that was used when your existing TBLLs were calculated.

* In Column (1), note how your bio-solids were managed when your existing TBLLs were calculated. In Column (2), note how your POTW is presently disposing of its biosolids and how your POTW will be disposing of its biosolids in the future.

ITEM II.

* List what your existing TBLLs are - as they appear in your current Sewer Use Ordinance (SUO).

ITEM III.

* Identify how your existing TBLLs are allocated out to your industrial community. Some pollutants may be allocated differently than others, if so please explain.

ITEM IV.

* Since your existing TBLLs were calculated, identify the following in detail:

  (1) if your POTW has experienced any upsets, inhibition, interference or pass-through as a result of an industrial discharge.

  (2) if your POTW is presently violating any of its current NPDES permit limitations - include toxicity.

ITEM V.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in pounds per day) received in the POTW's influent. Current sampling data is defined as data obtained over the last 24 month period.

  All influent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* Based on your existing TBLLs, as presented in Item II., list in Column (2), for each pollutant the Maximum Allowable Headwork Loading (MAHL) values derived from an applicable environmental criteria or standard, e.g. water quality, sludge, NPDES, inhibition, etc. For more information, please see EPA's Local Limit Guidance Document (July 2004).

Item VI.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in micrograms per liter) present your POTW's effluent. Current sampling data is defined as data obtained during the last 24 month period.

(Item VI. continued)

All effluent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* List in Column (2A) what the Water Quality Standards (WQS) were (in micrograms per liter) when your TBLLs were calculated, please note what hardness value was used at that time. Hardness should be expressed in milligram per liter of Calcium Carbonate.

List in Column (2B) the current WQSs or "Chronic Gold Book" values for each pollutant multiplied by the dilution ratio used in your new/reissued NPDES permit. For example, with a dilution ratio of 25:1 at a hardness of 25 mg/l - Calcium Carbonate (copper's chronic WQS equals 6.54 ug/l) the chronic NPDES permit limit for copper would equal 156.25 ug/l.

ITEM VII.

* In Column (1), list all pollutants (in micrograms per liter) limited in your new/reissued NPDES permit. In Column (2), list all pollutants limited in your old/expired NPDES permit.

ITEM VIII.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants in your POTW's biosolids. Current data is defined as data obtained during the last 24 month period. Results are to be expressed as total dry weight.

All biosolids data collected and analyzed must be in accordance with 40 CFR §136.

In Column (2A), list current State and/or Federal sludge standards that your facility's biosolids must comply with. Also note how your POTW currently manages the disposal of its biosolids. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria will be and method of disposal.

In general, please be sure the units reported are correct and all pertinent information is included in your evaluation. If you have any questions, please contact your pretreatment representative at EPA - New England.

REASSESSMENT OF TECHNICALLY BASED LOCAL LIMITS (TBLLs)

POTW Name & Address : ______________________________

NPDES PERMIT # : ______________________________

Date EPA approved current TBLLs : ______________________________

Date EPA approved current Sewer Use Ordinance : ______________________________

ITEM I.

In Column (1) list the conditions that existed when your current TBLLs were calculated. In Column (2), list current conditions or expected conditions at your POTW.

	Column (1) EXISTING TBLLs	Column (2) PRESENT CONDITIONS
POTW Flow (MGD)		
Dilution Ratio or 7Q10 (from NPDES Permit)		
SIU Flow (MGD)		
Safety Factor		N/A
Biosolids Disposal Method(s)		

ITEM II.

EXISTING TBLLs			
POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)	POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)

ITEM III.

Note how your existing TBLLs, listed in Item II., are allocated to your Significant Industrial Users (SIUs), i.e. uniform concentration, contributory flow, mass proportioning, other. Please specify by circling.

ITEM IV.

Has your POTW experienced any upsets, inhibition, interference or pass-through from industrial sources since your existing TBLLs were calculated?
If yes, explain.

____

____

Has your POTW violated any of its NPDES permit limits and/or toxicity test requirements?

If yes, explain.

____

____

ITEM V.

Using current POTW influent sampling data fill in Column (1). In Column (2), list your Maximum Allowable Headwork Loading (MAHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAHL value was established, i.e. water quality, sludge, NPDES etc.

Pollutant	Column (1) Influent Data Analyses Maximum (lb/day)	Average (lb/day)	Column (2) MAHL Values (lb/day)	Criteria
Arsenic				
Cadmium				
Chromium				
Copper				
Cyanide				
Lead				
Mercury				
Nickel				
Silver				
Zinc				
Other (List)				

ITEM VI.

Using current POTW effluent sampling data, fill in Column (1). In Column (2A) list what the Water Quality Standards (Gold Book Criteria) were at the time your existing TBLLs were developed. List in Column (2B) current Gold Book values multiplied by the dilution ratio used in your new/reissued NPDES permit.

Pollutant	Column (1) Effluent Data Analyses Maximum (ug/l)	Average (ug/l)	Columns (2A) (2B) Water Quality Criteria (Gold Book) From TBLLs (ug/l)	Today (ug/l)
Arsenic				
*Cadmium				
*Chromium				
*Copper				
Cyanide				
*Lead				
Mercury				
*Nickel				
Silver				
*Zinc				
Other (List)				

*Hardness Dependent (mg/l - CaCO3)

ITEM VII.

In Column (1), identify all pollutants limited in your new/reissued NPDES permit. In Column (2), identify all pollutants that were limited in your old/expired NPDES permit.

Column (1) NEW PERMIT Pollutants Limitations (ug/l)		Column (2) OLD PERMIT Pollutants	Limitations (ug/l)

ITEM VIII.

Using current POTW biosolids data, fill in Column (1). In Column (2A), list the biosolids criteria that was used at the time your existing TBLLs were calculated. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria would be and method of disposal.

Pollutant	Column (1) Biosolids Data Analyses Average (mg/kg)	Columns Biosolids Criteria (2A) From TBLLs (mg/kg)	(2B) New (mg/kg)
Arsenic			
Cadmium			
Chromium			
Copper			
Cyanide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Molybdenum			
Selenium			
Other (List)			

NPDES PERMIT REQUIREMENT
FOR
INDUSTRIAL PRETREATMENT ANNUAL REPORT

The information described below shall be included in the pretreatment program annual reports:

1. An updated list of all industrial users by category, as set forth in 40 C.F.R. 403.8(f)(2)(i), indicating compliance or noncompliance with the following:
   - baseline monitoring reporting requirements for newly promulgated industries
   - compliance status reporting requirements for newly promulgated industries
   - periodic (semi-annual) monitoring reporting requirements,
   - categorical standards, and
   - local limits;

2. A summary of compliance and enforcement activities during the preceding year, including the number of:
   - significant industrial users inspected by POTW (include inspection dates for each industrial user),
   - significant industrial users sampled by POTW (include sampling dates for each industrial user),
   - compliance schedules issued (include list of subject users),
   - written notices of violations issued (include list of subject users),
   - administrative orders issued (include list of subject users),
   - criminal or civil suits filed (include list of subject users) and,
   - penalties obtained (include list of subject users and penalty amounts);

3. A list of significantly violating industries required to be published in a local newspaper in accordance with 40 C.F.R. 403.8(f)(2)(vii);

4. A narrative description of program effectiveness including present and proposed changes to the program, such as funding, staffing, ordinances, regulations, rules and/or statutory authority;

5. A summary of all pollutant analytical results for influent, effluent, sludge and any toxicity or bioassay data from the wastewater treatment facility. The summary shall include a comparison of influent sampling results versus threshold inhibitory concentrations for the Wastewater Treatment System and effluent sampling results versus water quality standards. Such a comparison shall be based on the sampling program described in the paragraph below or any similar sampling program described in this Permit.

At a minimum, annual sampling and analysis of the influent and effluent of the Wastewater Treatment Plant shall be conducted for the following pollutants:

a.) Total Cadmium	f.) Total Nickel
b.) Total Chromium	g.) Total Silver
c.) Total Copper	h.) Total Zinc
d.) Total Lead	i.) Total Cyanide
e.) Total Mercury	j.) Total Arsenic

The sampling program shall consist of one 24-hour flow-proportioned composite and at least one grab sample that is representative of the flows received by the POTW. The composite shall consist of hourly flow-proportioned grab samples taken over a 24-hour period if the sample is collected manually or shall consist of a minimum of 48 samples collected at 30 minute intervals if an automated sampler is used. Cyanide shall be taken as a grab sample during the same period as the composite sample. Sampling and preservation shall be consistent with 40 CFR Part 136.

6. A detailed description of all interference and pass-through that occurred during the past year;

7. A thorough description of all investigations into interference and pass-through during the past year;

8. A description of monitoring, sewer inspections and evaluations which were done during the past year to detect interference and pass-through, specifying parameters and frequencies;

9. A description of actions being taken to reduce the incidence of significant violations by significant industrial users; and,

10. The date of the latest adoption of local limits and an indication as to whether or not the permittee is under a State or Federal compliance schedule that includes steps to be taken to revise local limits.

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

TABLE OF CONTENTS

[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. <u>Permit Actions</u>

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. <u>Upset</u>

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. <u>Monitoring and Records</u>

   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. <u>Signatory Requirement</u>

   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. <u>Availability of Reports</u>.

   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. <u>General Definitions</u>
   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
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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: NH0100790

PUBLIC NOTICE START AND END DATES: May 20, 2020 – June 18, 2020

NAME AND MAILING ADDRESS OF APPLICANT:

City of Keene
City Hall
580 Main Street
Keene, New Hampshire 03431

NAMES AND MAILING ADDRESSES OF CO-PERMITTEES

Town of Marlborough
Board of Selectmen
P.O. Box 487
Marlborough, NH 03455

Town of Swanzey
Swanzey Sewer Commission
P.O. Box 10009
Swanzey, NH 03446

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Keene Wastewater Treatment Plant
420 Airport Road
Swanzey, New Hampshire 03446

RECEIVING WATER AND CLASSIFICATION:

Ashuelot River (NHRIV802010301-38)
Ashuelot River Watershed - USGS Code: 01158000
Class B - Warm Water Fishery

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APPENDICES

1 Proposed Action

The applicant named above, 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 Keene Wastewater Treatment Plant (WWTP), the "Facility", into the designated receiving water.

The permit currently in effect was issued on August 24, 2007 with an effective date of November 1, 2007 and expired on November 1, 2012 (the "2007 Permit"). The Permittee filed an application for permit reissuance with EPA dated June 21, 2012, as required by 40 Code of Federal Regulations (C.F.R.) § 122.6. Since the permit application was deemed timely and complete by EPA on July 24, 2012, the Facility's 2007 Permit has been administratively continued pursuant to 40 C.F.R. § 122.6 and § 122.21(d). EPA and the State conducted a site visit on October 25, 2018.

The 2007 Permit included two (2) co-Permittees, the Towns of Marlborough and Swanzey, which were responsible for complying with certain portions of the Permit. These two entities will continue to be co-Permittees in this Permit.

2 Statutory and Regulatory Authority

Congress enacted the Clean Water Act (CWA), "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into the waters of the United States from any point source, except as authorized by specific permitting sections of the CWA, one of which is § 402. *See* CWA §§ 303(a), 402(a). Section 402(a) established one of the CWA's principal permitting programs, the NPDES Permit Program. Under this section, EPA may "issue a permit for the discharge of any pollutant or combination of pollutants" in accordance with certain conditions. CWA § 402(a). NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. *See* CWA § 402(a)(1) and (2). The regulations governing EPA's NPDES permit program are generally found in 40 C.F.R. §§ 122, 124, 125, and 136.

"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 C.F.R. §§ 122.4(d), 122.44(d)(1), 122.44(d)(5).

CWA §§ 301 and 306 provide for two types of effluent limitations to be included in NPDES permits: "technology-based" effluent limitations (TBELs) and "water quality-based" effluent limitations (WQBELs). *See* CWA §§ 301, 304(d); 40 C.F.R. 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 BOD_5, TSS and pH. *See* 40 C.F.R. § 133.

Under § 301(b)(1) of the CWA, POTWs must have achieved effluent limits based upon secondary treatment technology by July 1, 1997. Since all statutory deadlines for meeting various treatment technology-based effluent limitations established pursuant to the CWA have expired. When technology-based effluent limits are included in a permit, compliance with those limitations is from the date the issued permit becomes effective. *See* 40 C.F.R. § 125.3(a)(1).

2.2 Water Quality Based Requirements

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

2.2.1 Water Quality Standards

The CWA requires that each state develop water quality standards (WQSs) for all water bodies within the State. *See* CWA § 303 and 40 C.F.R. § 131.10-12. Generally, WQSs consist of three parts: 1) beneficial designated use or uses for a water-body or a segment of a water body; 2) numeric or narrative water quality criteria sufficient to protect the assigned designated use(s); and 3) anti-degradation requirements to ensure that once a use is attained it will not be degraded and to protect high quality and National resource waters. *See* CWA § 303(c)(2)(A) and 40 C.F.R. § 131.12. The applicable State WQSs can be found in the New Hampshire Code of Administrative Rules, Surface Water Quality Regulations, Chapter Env-Wq 1700 et seq. Also *See* generally, Title 50, Water Management and Protection, Chapters 485-A, Water Pollution and Waste Disposal.

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

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

2.2.2 Anti-degradation

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

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

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

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

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

The Keene WWTP discharges to the Ashuelot River, into waterbody segment #NHRIV802010301-38, which runs from the facility to the confluence with the South Branch of the Ashuelot River. The State of New Hampshire's 2016 303(d) list of impaired waters identifies surface waters which do not currently meet state water quality standards (NHDES 2016).

This segment of the Ashuelot River has been identified as violating water quality standards for unionized ammonia, total ammonia, chloride, copper, percent Dissolved Oxygen (DO) saturation, DO, total phosphorus, turbidity, and pH, all for aquatic life. This segment is impaired for primary contact recreation due to *Escherichia coli* and chlorophyll-a and for secondary contact recreation due to *Escherichia coli.* This segment is also impaired for fish consumption due to mercury.

States are required to prepare Total Maximum Daily Load (TMDL) analyses for receiving waters listed on the 303(d) list. A TMDL is a planning tool and potential starting point for restoration activities with the ultimate goal of attaining water quality standards. A TMDL is essentially a pollution budget designed to restore the health of an impaired water body. A TMDL typically identifies the source(s) of the pollutant from direct and indirect discharges, determines the maximum load of the pollutant that can be discharged to a specific water body while maintaining WQSs for designated uses, and allocates that load to the various pollutant sources, including point source discharges, subject to NPDES permits. *See* 40 C.F.R. § 130.7.

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

The State of New Hampshire has performed sampling necessary to perform a TMDL on the segment of the Ashuelot River from the Keene WWTP to the West Swanzey Wastewater Treatment Plant, but this TMDL has yet to be completed.

2.2.4 Reasonable Potential

Pursuant to CWA § 301(b)(1)(C) and 40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 or it is deemed that the state has waived its right to certify. Regulations governing state certification are set forth in 40 C.F.R. § 124.53 and § 124.55. EPA has requested permit certification by the State pursuant to 40 C.F.R. § 124.53 and expects that the Draft Permit will be certified.

If the State believes that any conditions more stringent than those contained in the Draft Permit are necessary to meet the requirements of either the CWA §§ 208(e), 301, 302, 303, 306 and 307 and with appropriate requirements of State law, the State should include such conditions and, in each case, cite the CWA or State law reference upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. The only exception to this is that the sludge conditions/requirements implementing § 405(d) of the CWA are not subject to the § 401 State Certification requirements. Reviews and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made through the applicable procedures of 40 C.F.R. 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 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." *See* 40 C.F.R. § 124.55(c). In such an instance, the regulation provides that, "The Regional Administrator shall disregard any such certification conditions or denials as waivers of certification." *Id.* EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 C.F.R. § 122.4 (d) and 40 C.F.R. § 122.44(d).

2.3 Effluent Flow Requirements

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

Generally, EPA uses effluent flow both to determine whether an NPDES permit needs certain effluent limitations and to calculate the limitations themselves. EPA practice is to use effluent flow as a reasonable and important worst-case condition in EPA's reasonable potential and

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

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

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

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 though physical defects such as cracked pipes or deteriorated joints. Inflow is extraneous flow added to the collection system that enters the collection system through point sources such as roof leaders, yard and area drains, sump pumps, manhole covers, tide gates, and cross connections from storm water systems. Significant I/I in a collection system may displace sanitary flow, reducing the capacity available for treatment and the operating efficiency of the treatment works and to properly operate and maintain the treatment works.

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[1] EPA's regulations regarding "reasonable potential" require EPA to consider "where appropriate, the dilution of the effluent in the receiving water," *id* 40 C.F.R. §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)*

Furthermore, the extraneous flow due to significant I/I greatly increases the potential for sanitary sewer overflows (SSOs) in separate systems. Consequently, the effluent flow limit is a permit condition that relates to the permittee's duty to mitigate (*i.e.*, minimize or prevent any discharge in violation of the permit that has a reasonable likelihood of adversely affecting human health or the environment) and to properly operate and maintain the treatment works. *See* 40 C.F.R. §§ 122.41(d), (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 C.F.R. 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 C.F.R. §§ 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 wastewater 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 C.F.R. Part 122.

NPDES permits require that the approved analytical procedures found in 40 C.F.R. 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 C.F.R. § 122.21(e)(3) (completeness), 40 C.F.R. § 122.44(i)(1)(iv) (monitoring requirements) and/or as cross referenced at 40 C.F.R. § 136.1(c) (applicability) indicate that an EPA-approved method is sufficiently sensitive where:

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

- 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 C.F.R. Part 126 or required under 40 C.F.R. 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 C.F.R. §§ 122.41 and 403.12. NetDMR is accessible through EPA's Central Data Exchange at https://cdx.epa.gov/. Further information about NetDMR can be found on the EPA 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.

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[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).

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

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 C.F.R. 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 C.F.R. § 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 2007 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 Description of Facility and Discharge

3.1 Location and Type of Facility

The location of the treatment plant and Outfall 001 to the Ashuelot River are shown in Figure 1. The latitude and longitude of the outfall are 42^0 53' 27.614 N and 72^0 16' 28.101 W.

The Keene WWTP collects and treats domestic, commercial and industrial wastewater from the City of Keene and also accepts septage and holding tank waste of approximately 25,000 gpd. In addition, the WWTP accepts sanitary and industrial wastewater from the Towns of Marlborough and Swanzey. For the period of October 2017 through September 2018, the Towns of Marlboro and Swanzey contributed 47.6 million gallons (MG) and 16.4 MG of flow to the WWTP, respectively. This averages approximately 130,000 gallons per day (gpd) from Marlboro and 45,000 gpd from Swanzey. (personal communication, Donna Hanscom, 11/27/18).

The Town of Marlborough and the Swanzey Sewer Commission continue to be co-Permittees with the City of Keene. These co-Permittees own and operate sanitary wastewater collection systems that discharge flows to the Keene WWTP for treatment. These municipalities are co-Permittees for certain activities pertaining to proper operation and maintenance of their respective collection systems (*See* Parts I.B, I.C, and I.D. of the Draft Permit). The co-Permittees are required to comply with requirements to operate and maintain their collection systems so as to avoid discharges of sewage from the collection systems. These co-Permittees did not reapply for permit coverage. With letters sent on August 5, 2015 to these co-Permittees, the EPA waived their permit application requirements. EPA determined that the reapplication material that the City of Keene submitted contained sufficient information necessary to establish permit limits and conditions for the entire publicly owned treatment works, including those collection systems belonging to the co-Permittees.

The Facility has a design flow of 6.0 MGD, the annual average daily flow reported in the 2012 application was 3.49 MGD and the median flow for the last five (5) years has been 2.65 MGD. Keene's collection system is a separate system with no combined sewers. The Permittee has an approved pretreatment program in place, which includes flows from 11 significant industrial users, 5 of which are categorical industrial users. Pollutants introduced into POTWs by a non-domestic source shall not pass through the POTW or interfere with the operation or performance of the treatment works.

A quantitative description of the discharge in terms of effluent parameters, based on monitoring data submitted by the permittee from October 2014 through October 2019 is provided in Appendix A of this Fact Sheet.

3.1.1 Treatment Process Description

The Keene WWTP is designed as a 6.0 million gallon per day (MGD) wastewater treatment facility using an activated sludge aeration treatment process. The influent, after being aerated by injected liquid oxygen at the main pumping station and passing through an aerated grit chamber, is split between two primary clarifier tanks. Settled sludge is pumped to two aerated holding tanks, while the wastewater stream continues to two aeration basins. After leaving the two aeration basins, the wastewater enters one of two secondary clarifiers for further settling. Sludge deposited in these clarifiers is pumped to the sludge holding tanks. The effluent from the secondary clarifier is then routed to the ultraviolet (UV) light disinfection building, where disinfection by UV light is conducted. Effluent sampling is conducted after disinfection inside of this building. The effluent is then piped underground for about 500 feet, before splitting into 2 pipes that discharge about 50 feet apart to the Ashuelot River. A flow diagram of the Keene WWTP is shown in Figure 2.

Sludge disposal is accomplished by first thickening and then dewatering the sludge with a belt filter press. Sludge is hauled offsite by Waste Management Inc. and disposed of in a municipal solid waste landfill in Rochester, NH. For calendar year 2017, the Keene WWTP generated 770 dry metric tons of sewage sludge that was hauled offsite for disposal.

3.1.2 Collection System Description

The collection system discharging to the treatment plant consists of separate sanitary sewers. In addition to wastewater, separate sanitary sewers convey inflow and infiltration (I/I). 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 of secondary treatment. I/I greatly increase the potential for sanitary sewer overflows (SSO) in separate sanitary sewer systems. For the years of 2014 through 2017, the Permittee estimates that total I/I was 32% of total flows to the treatment plant. Specific requirements for I/I control and reporting of SSOs are detailed in Section I.C of the Permit.

4 Description of Receiving Water and Dilution

4.1 Receiving Water

The Keene WWTP discharges through Outfall 001 to Ashuelot River, within Segment NHRIV802010301-38. This segment is 0.226 miles long and travels from the Facility's discharge point to the confluence with South Branch of the Ashuelot River. The Ashuelot River is part of the Ashuelot River watershed which flows to the Connecticut River and eventually to Long Island Sound.

This segment of the Ashuelot River is classified as a Class B warm water fishery by the State of New Hampshire. According to New Hampshire's WQS (RSA 485-A:8), "*Class B waters shall be of the second highest quality and shall have no objectionable physical characteristics, shall contain a dissolved oxygen content of at least 75 percent of saturation, and shall contain not more than either a geometric mean based on at least 3 samples obtained over a 60-day period of 126 Escherichia coli per 100 milliliters, or greater than 406 Escherichia coli per 100 milliliters in any one sample; and for designated beach areas shall contain not more than a geometric mean based on at least 3 samples obtained over a 60-day period of 47 Escherichia coli per 100 milliliters, or 88 Escherichia coli per 100 milliliters in any one sample; unless naturally occurring. There shall be no disposal of sewage or waste into said waters except those which have received adequate treatment to prevent the lowering of the biological, physical, chemical or bacteriological characteristics below those given above, nor shall such disposal of sewage or waste be inimical to aquatic life or to the maintenance of aquatic life in said receiving waters. The pH range for said waters shall be 6.5 to 8.0 except when due to natural causes. Any stream temperature increase associated with the discharge of treated sewage, waste or cooling water, water diversions, or releases shall not be such as to appreciably interfere with the uses assigned to this class.*"

The State of New Hampshire adopted new criteria into their its water quality standard regulations in December 2016 and submitted them to EPA for review and approval. Although the new criteria have not yet been approved by EPA, the Draft Permit is being proposed with effluent limits derived to meet the new criteria in anticipation of a state certification to do so.

The NHDES' Year 2016 Integrated List of Waters (2016 Integrated List), the 303(d) list, includes this segment of the Ashuelot River (NHRIV802010301-38), which is assigned an Assessment Use Category 5-M, which is characterized as marginally impaired and requiring a TMDL. The only parameter for aquatic life that carries the 5-M classification is pH, which a low TMDL priority and the source of which is unknown. Insufficient information is available for the parameters of unionized and total ammonia, chloride, copper, dissolved oxygen (DO) saturation, DO, total phosphorus, and turbidity. A previous TMDL that was completed found that this segment is impaired for fish consumption due to mercury. There is also insufficient information to determine that the primary contact recreation use is being met due to chlorophyll-a and *Escherichia coli (E. Coli*), and that the secondary contact recreation use is being met due to *E.coli*. No other TMDL for this stretch of the Ashuelot River has been completed.

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[5]. For most pollutants and criteria, the critical flow in rivers and streams is some measure of the low flow of that river or stream. New Hampshire water quality regulations require that the available effluent dilution be based on the 7 day, 10-year low flow (7Q10 flow) of the receiving water (314 CMR 4.03(3)(1)). The 7Q10 low flow is the mean low flow over 7 consecutive days, recurring every 10 years. In addition, the State has reserved 10 percent of the Assimilative Capacity of the receiving water for future uses pursuant to RSA 485-A:13,I(a) and Env-Ws 1705.01.

The 7Q10 flow for the Ashuelot River just upstream of the Keene WWTF outfall was calculated using the Dingman ratio proration method (Dingman Scenario III) with the following data:

- Q_{USG}: stream flow data for the available period of record from 4/1/1996 – 3/31/2019 at the upstream USGS Ashuelot River below Surry Mt Dam Gage (01158000)[6]

- Q_{DSG}: stream flow data for the available period of record from 4/1/1994 – 3/31/2019 at the downstream USGS Ashuelot River at West Swanzey Gage (01160350)

- Q_{D1}: estimation of watershed flow contributions to the river segment between the upstream USGS Ashuelot River below Surry Mt Dam Gage (01158000) and the Keene WWTF outfall (Dingman Area 1), excluding the Babbidge Reservoir basin, using the Dingman equation

- Q_{D2}: estimation of watershed flow contributions to the river segment between the upstream USGS Ashuelot River below Surry Mt Dam Gage (01158000) and the downstream USGS Ashuelot River at West Swanzey Gage (01160350) (Dingman Area 2), excluding the Babbidge Reservoir basin, using the Dingman equation

- $Q_{WWTF,actual}$: the actual average flow for the Keene WWTF for the past 5 years

- $Q_{WWTF,design}$: average daily design flow for the Keene WWTF

The City of Keene's water sources include two wells and the Babbidge reservoir, all within the

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

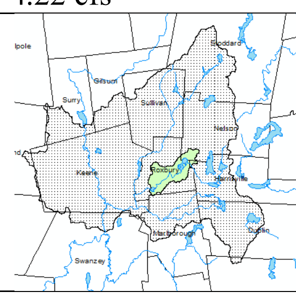
[6] EPA has deviated from its standard practice of using a 30 year flow record for this permit because the years of 1989 and 1995 did not have complete flow records.

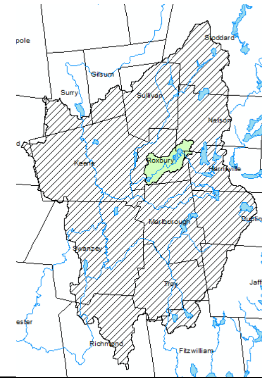
basin upstream of the Keene WWTF outfall. The water withdrawals from the two wells would be reflected in the stream flow upstream of the WWTF. However, the water withdrawals from the Babbidge Reservoir, while located within the basin, would not be reflected in the stream flow upstream of the WWTF because this is stored water that is independent of the hydrology within the basin. Therefore, this portion of the WWTF discharge would act as though it is from a source outside of the basin upstream of the discharger's location. Based on the water use data for the City of Keene from 2009-2016, the Babbidge Reservoir provides approximately 72% of the city's water, while the two wells provide approximately 28%.

The Dingman ratio proration method was used in order to determine the 7Q10 flow of the Ashuelot River at the Keene WWTF outfall. In addition, the downstream USGS Ashuelot River at West Swanzey Gage (01160350) 7Q10 flow was adjusted to remove the effects of the well water withdrawals and the addition of the flow from the Keene WWTF, as these are both accounted for in the separate calculations for the final 7Q10 value and the dilution factor. Not adjusting the downstream gage to remove the flow from the Keene WWTF would allow a portion of the flow added by the Babbidge Reservoir to be counted as upstream flow, which it is not. Once this upstream value was calculated, it also needed to be adjusted to remove the withdrawals from the wells, as they were not accounted for using the Dingman proration method with the adjusted value for the downstream gage.

Table 1 shows the calculation to determine the 7Q10 flow of the Ashuelot River just upstream of the Keene WWTF outfall.

Table 1 – 7Q10 Calculation for Keene WWTF

Stream Flow Component	**Flow (cfs)**	**Comments**
Q_{USG} 7Q10 flow at upstream Ashuelot River below Surry Mt Dam Gage (01158000)	2.65	Period of record: 4/1/1996 – 3/31/2019 Calculated using US EPA DFlow program (v3.1b)
$Q_{DSG,adj}$ Adjusted 7Q10 flow at downstream Ashuelot River at West Swanzey Gage (01160350)	23.3	Period of record: 4/1/1994 – 3/31/2019 Unadjusted Q_{DSG} calculated using US EPA DFlow program (v3.1b) 7Q10 flow at downstream Ashuelot River at West Swanzey Gage (01160350), adjusted to remove withdrawals from wells and contributions from the Keene WWTF, using the following equation: $Q_{DSG,adj} = Q_{DSG} + (0.28)(Q_{WWTF,actual}) - Q_{WWTF,actual}$ $= 26.3 + (0.28)(4.22) – 4.22$ where Q_{DSG} = unadjusted 7Q10 flow at downstream USGS gage 01160350 = 26.3 cfs $Q_{WWTF,actual}$ = the actual average flow for the Keene WWTF for the past 5 years = 4.22 cfs
Q_{D1} Estimated intervening area 7Q10 between upstream gage 01158000 and Keene WWTF outfall (Dingman Area 1)	10.6	Calculated using Dingman[1] equation; Babbidge reservoir basin was removed from this area 

Q_{D2} Estimated intervening area 7Q10 between upstream gage 01158000 and downstream gage 01160350 (Dingman Area 2)	18.8	Calculated using Dingman[1] equation; Babbidge reservoir basin was removed from this area 
7Q10 just upstream of the Keene WWTP Outfall, unadjusted	14.3	$7Q10_{,unadjusted}=((Q_{DSG,adj} - Q_{USG})(Q_{D1}/ Q_{D2}))+Q_{USG}$
Final 7Q10 just upstream of the Keene WWTF Outfall	**11.7**	**$7Q10 = 7Q10_{,unadjusted} – (0.28)(Q_{WWTF,design})$** where $Q_{WWTF,design}$ = the average daily design flow of the Keene WWTF = 9.28 cfs
1. Dingman, S.L., and S.C Lawlor, 1995. Estimating Low-Flow Quantiles from Drainage-Basin Characteristics in New Hampshire and Vermont, American Water Resources Association, Water Resources Bulletin, pp 243-256.		

<u>Dilution Factor</u>

The dilution factor was calculated from a mass balance as follows:

$$7Q10\ \text{Dilution Factor}= (0.9)(Q_S+Q_{WWTF,design})/Q_{WWTF,design}$$

where Q_S = 7Q10 flow of the Ashuelot River just upstream of the Keene WWTF outfall

= 11.7 cfs

$Q_{WWTF,design}$ = average daily design flow for the Keene WWTF = 6.0 mgd = 9.28 cfs

0.9 = factor to reserve 10% of the receiving water assimilative capacity

7Q10 Dilution factor= (0.9)(11.7+9.28)/9.28 = **2.0**

Therefore, the dilution factor for the Keene effluent was determined to be 2.0, which is slightly different than the figure of 2.08 that was used in the 2007 Permit and which will be used in this Draft Permit.

5 Proposed Effluent Limitations and Conditions

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

5.1 Effluent Limitations and Monitoring Requirements

In addition to the State and Federal regulations described in Section 2, data submitted by the permittee in their permit application as well as in monthly discharge monitoring reports (DMRs) and in WET test reports from 2014 through 2019 were used to identify the pollutants of concern and to evaluate the discharge during the effluent limitations development process (*See* Appendix A). A reasonable potential analysis is included in Appendix B and results are discussed in the sections below.

5.1.1 Wastewater Effluent Flow

The 2007 Permit required reporting of effluent flow with no limit. A review of DMR data in Appendix A, from October 2014 to October 2019 shows that the reported monthly flow was in the range of 1.67 to 5.19 MGD with a median of 2.65 MGD and a high daily flow of 9.11 MGD.

The 2007 Permit included only a monitoring requirement for flow. The Draft Permit has established a monthly average flow limit of 6.0 MGD expressed as a rolling annual average, which reflects the design flow of the facility. The basis for requiring an effluent flow limit is explained in Section 2.3 of this Fact Sheet. 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

The average monthly and average weekly $CBOD_5$ limits in the 2007 Permit were based on the secondary treatment standards in 40 C.F.R. § 133.102; the average monthly limit was 25 mg/L, the average weekly limit was 40 mg/L, and the daily maximum limit was 45 mg/l.

A review of DMR data submitted from October 2014 through October 2019 shows that there have been no permit violations of $CBOD_5$ concentration limits. Based on the DMR data (*See* Appendix A), the $CBOD_5$ median values were 1 mg/l, 1 mg/l, and 1.2 mg/l, respectively, for the monthly average, weekly average, and daily maximum values. The highest reading recorded during the period was 5 mg/l.

The Draft Permit proposes the same $CBOD_5$ concentration limits as in the 2007 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 2007 Permit were based on the $CBOD_5$ concentration limits and the design flow, which were calculated as follows:

$CBOD_5$ Mass Loading Calculations:

Calculations of maximum allowable loads for monthly average, weekly average, and daily maximum $CBOD_5$ are based on the following equation:

$$L = C_d * Q_d * 8.345$$

Where:

L = Maximum allowable load in lbs/day.
C_d = Maximum allowable effluent concentration for reporting period in mg/L (reporting periods are monthly average, weekly average, and daily maximum)
Q_d = Annual average design flow of Facility (6.0 MGD).
8.345 = Factor to convert effluent concentration in mg/L and design flow in MGD to lb/day.

CBOD5 Monthly Average, Weekly Average, and Daily Maximum Limits

Monthly average = 25 mg/L x 6.0 MGD x 8.345 = **1,252 lb/day**
Weekly average = 40 mg/L x 6.0 MGD x 8.345 = **2,003 lb/day**
Daily maximum = 45 mg/L x 6.0 MGD x 8.345 = **2,253 lb/day**

A review of DMR data submitted from 2014 through 2019 shows that there have been no permit violations of $CBOD_5$ mass limits. Based on the DMR data (*See* Appendix A), the $CBOD_5$ median values were 23 lb/day, 29 lb/day, and 31 lb/day, respectively, for the monthly average, weekly average, and daily maximum values. The highest reading recorded during the period was 111 lb/day.

The CBOD mass limits will continue to be based on the concentration limits from 40 CFR § 133.102. The levels of $CBOD_5$ currently being discharged are consistently below the effluent limits and EPA expects that the Facility will continue to meet its $CBOD_5$ limits without any adjustments to its treatment process.

5.1.3 Total Suspended Solids (TSS)

5.1.3.1 TSS Concentration Limits

The monthly average and weekly average TSS concentration limits in the 2007 Permit were based on the secondary treatment standards in 40 C.F.R. § 133.102; the average monthly limit was 30 mg/L, the average weekly limit was 45 mg/L, and the daily maximum limit was 50 mg/l.

A review of DMR data submitted from 2014 through 2019 shows that there have been no permit violations of TSS concentration limits. Based on the DMR data (*See* Appendix A), the TSS concentration median values were 2 mg/l, 2 mg/l, and 3 mg/l, respectively, for the monthly average, weekly average, and daily maximum values. The highest reading recorded during the period was 29 mg/l.

The Draft Permit proposes the same TSS concentration limits as in the 2007 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 mass based TSS limits in the 2007 Permit were based on the TSS concentration limits and the design flow, which were calculated as follows:

TSS Mass Loading Calculations:

Calculations of maximum allowable loads for monthly average, weekly average, and daily maximum TSS are based on the following equation:

$$L = C_d * Q_d * 8.345$$

Where:

L = Maximum allowable load in lbs/day.
C_d = Maximum allowable effluent concentration for reporting period in mg/L (reporting periods are monthly average, weekly average, and daily maximum)
Q_d = Annual average design flow of Facility (6.0 MGD).
8.345 = Factor to convert effluent concentration in mg/L and design flow in MGD to lb/day.

TSS Monthly Average, Weekly Average, and Daily Maximum Limits

Monthly average = 30 mg/L x 6.0 MGD x 8.345 = **1,502 lb/day**
Weekly average = 45 mg/L x 6.0 MGD x 8.345 = **2,253 lb/day**
Daily maximum = 50 mg/L x 6.0 MGD x 8.345 = **2,504 lb/day**

A review of DMR data submitted from 2014 through 2019 shows that there have been no permit violations of TSS mass limits. Based on the DMR data (*See* Appendix A), the TSS median values were 36 lb/day, 53 lb/day, and 70 lb/day, respectively, for the monthly average, weekly average, and daily maximum values. The highest reading recorded during the period was 668 lb/day.

The TSS mass limits will continue to be based on the concentration limits from 40 CFR § 133.102. The levels of TSS currently being discharged are consistently below the effluent limits and EPA expects that the Facility will continue to meet its TSS limits without any adjustments to its treatment process.

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

In accordance with the provisions of 40 C.F.R. § 133.102(a)(4)(iii) and (b)(3), the 2007 Permit required that the 30-day average percent removal for $CBOD_5$ and TSS be not less than 85%. A review of DMR data for the monitoring period shows equal median $CBOD_5$ and TSS removal percentages of 99.4% for the period. There were no violations of the 85% removal requirement for $CBOD_5$ or TSS during that period.

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

5.1.5 pH

The hydrogen ion concentration in an aqueous solution is represented by the pH using a logarithmic scale of 0 to 14 standard units (S.U.). Solutions with pH 7.0 S.U. are neutral, while those with pH less than 7.0 S.U. are acidic and those with pH greater than 7.0 S.U. are basic. Discharges with pH values markedly different from the receiving water pH can have a detrimental effect on the environment. Sudden pH changes can kill aquatic life. pH can also have an indirect effect on the toxicity of other pollutants in the water.

Consistent with the requirements of New Hampshire's WQS at RSA 485-A:8 II, "The pH for said (Class B) waters shall be 6.5 to 8.0 except when due to natural causes." The monitoring frequency is once per day. A review of DMR data submitted from 2014 through 2019 shows that there have been 3 violations of the minimum pH limit and 4 violations of the maximum pH limit with a range of 6.3 to 9.5 S.U.

The pH requirements in the 2007 Permit are carried forward into the Draft Permit as there has been no change in the WQS with regards to pH.

5.1.6 Bacteria

The 2007 Permit includes effluent limits for bacteria using *Escherichia coli* (*E. coli*) bacteria as the indicator bacteria to protect recreational uses. NH WQS at Env-Wq 1700, Appendix E require a monthly geometric mean of 126 E.coli/100 ml and a maximum daily limit of 406 E.coli/100 ml. A review of DMR data during the monitoring period shows that the Permittee has been in compliance with the average monthly and maximum daily fecal coliform limits of the 2007 Permit (126 E.coli/100 mL and 406 E.coli/100 mL, respectively), with the exception of 2 daily maximum readings of 687 and 1203 E.coli/100 ml. The monthly geometric mean *E. coli* bacteria count ranged from 1 to 11 E.coli/100 ml.

The Draft Permit proposes maintaining the same effluent limits for bacteria as the NH WQS have not changed. The *E. coli* limits are a monthly geometric mean of 126 E.coli/100 ml and a maximum daily limit of 406 E.coli/100 ml. The sampling frequency for *E. coli* is three times per week, as in the 2007 Permit.

5.1.7 Dissolved Oxygen

The NH WQS at Env-Wq 1703.07 establish minimum DO levels for Class B waters, the class assigned to the receiving water for this discharge. The State's Class B waters shall have an instantaneous minimum DO concentration of at least 5.0 mg/L. The minimum DO limit for the Keene treatment plant was established at 7.0 mg/L in the 2007 Permit. This DO limit was established by the NHDES in the late 1980's through an effort which sampled the River and modeled the effects of Keene's effluent discharge on the River's water quality. The 7.0 mg/L minimum DO limit was established to ensure that the facility's effluent is treated to a sufficient level so any biochemical activity in the effluent does not result in violations of the minimum criterion of 5.0 mg/l.

Review of the monitoring data in the DMRs, provided in Appendix A, shows average DO of 8.4 mg/L, ranging from 7.1 to 9.3 mg/L.

The Draft Permit proposes a dissolved oxygen limit of 7.0 mg/L to be consistent with the 2007 Permit, State WQS, and anti-backsliding regulations.

5.1.8 Ammonia

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

The 2007 Permit includes warm weather (June 1 through October 31) seasonal ammonia limits that were established to address the need to reduce the oxygen demanding component of the nitrogen cycle and also reflect a need to reduce ammonia toxicity. The 2007 Permit included a monthly average limit of 2.1 mg/L and a daily maximum limit of 3.1 mg/L for ammonia-nitrogen during this warm weather period. In addition, the 2007 Permit established corresponding mass limits of 105 lbs/day as a monthly average and 155 lbs/day as a daily maximum. These limits were based on the NHDES WQS ammonia criterion of 1.23 mg/l, assuming a pH of 6.5 S.U. and a temperature of 25°C; and a dilution factor of 1.7, based on the Permit issued prior to 2007. At the time of 2007 Permit reissuance, the ammonia criteria had changed, and the calculated ammonia limits could have been revised higher. However, since this stretch of the Ashuelot River was impaired for low DO and could not assimilate additional loadings of oxygen depleting parameters, such as ammonia, it was determined that the 2007 Permit was to maintain the prior permit's more stringent ammonia limits.

The 2007 Permit also includes monthly average cold weather (November 1 through May 31) ammonia-nitrogen effluent limits of 12 mg/L and 600 lb/day to prevent ammonia toxicity in the Ashuelot River. There is no weekly average or daily maximum winter effluent limit in the 2007 Permit.

Review of the DMR data during the monitoring period of October 2015 through October 2019, provided in Appendix A, shows one violation of the warm weather 3.1 mg/L daily maximum limit, one violation of the warm weather 155 lb/day daily maximum limit and no violations of the cold weather limits.

The freshwater ammonia criteria in the NH WQS (Env-Wq 1703.25 & 1703.26) are dependent on pH and temperature and the acute criterion is also dependent on whether Salmonids are present in the receiving water.

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.

EPA notes that since the 2007 Permit already contained limits for ammonia, a reasonable potential determination for those limits is not applicable, so the table in Appendix B indicates "N/A" for reasonable potential. In such cases, the same mass balance equation is used to determine if a more stringent limit would be required to meet WQS under current conditions. The limit is determined to be the more stringent of either (1) the existing limit or (2) the calculated effluent concentration (C_d) allowable to meet WQS based on current conditions. However, if the mass balance indicates that a less stringent effluent concentration (C_d) would meet WQS under current conditions, a case-by-case analysis must be done to determine if backsliding is allowable based on the exceptions found at 40 CFR § 122.44(l)(2)(i).

To determine the applicable ammonia criteria, EPA assumes a warm weather temperature of 25° C and a cold weather temperature of 5° C. EPA used the ambient pH monitoring shown in Appendix A, which indicates that the median pH is 6.5 S.U. Additionally, the Ashuelot River in 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, a more stringent chronic limit of 9.9 mg/l is warranted for the winter period, which corresponds to a mass limit of 496 lb/day (i.e., 9.9 mg/L * 6.0 MGD * 8.345). The summer limits of 2.1 mg/l and 3.1 mg/l will be carried forward in the Draft Permit as they continue to meet WQS and are consistent with anti-backsliding regulations at 40 CFR § 122.44(l). 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 reduce 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. For this Permit, phosphorus is the nutrient of concern in the Ashuelot River and nitrogen is also a concern as the Ashuelot River is tributary to Long Island Sound. Therefore, both phosphorus and nitrogen are evaluated below.

5.1.9.1 Total Nitrogen

The Keene WWTP discharges to the Ashuelot River, which drains to Long Island Sound via the Connecticut River. In December 2000, the Connecticut Department of Energy and

Environmental Protection ("CT DEEP") and New York State Department of Environmental Conservation ("NYSDEC") completed a Total Maximum Daily Load ("TMDL") for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL included a Waste Load Allocation ("WLA") for point sources and a Load Allocation ("LA") for non-point sources. The point source WLA for out-of-basin sources (Massachusetts, New Hampshire, and Vermont point sources discharging to the Connecticut, Housatonic, and Thames River watersheds) requires an aggregate 25% reduction from the baseline total nitrogen loading estimated in the TMDL.

The 1998 baseline out-of-basin total nitrogen point source loadings estimated for the Connecticut, Housatonic, and Thames River watersheds were 21,672 lb/day, 3,286 lb/day, and 1,253 lb/day, respectively (*see* Table 2: Estimated Point Source Nitrogen Loadings to the Connecticut, Housatonic, and Thames Rivers Watersheds below). The estimated point source total nitrogen loadings for the Connecticut, Housatonic, and Thames Rivers for 2013-2018 are summarized in Appendix C.

Table 2: Estimated Out-of-Basin Point Source Nitrogen Loadings to the Connecticut, Housatonic, and Thames Rivers Watersheds

Basin	**1998 Baseline Loading[7] lb/day**	**TMDL WLA[8] lb/day**	**Maximum Loading, 2014-2018, lb/day[9]**
Connecticut River	21,672	16,254	12,120[10]
Housatonic River	3,286	2,464	1,707[11]
Thames River	1,253	939	677[12]
Totals	26,211	19,657	14,504

As can be seen in Table 2, the TMDL target of a 25% aggregate reduction from the 1998 baseline loadings is currently being met, and the overall loading from MA, NH and VT wastewater treatment plants discharging to the Connecticut River watershed is about 11% below the TMDL wasteload allocation. Overall the loadings from MA, NH, and VT are about 15% below the TMDL wasteload allocation. The 2007 Permit did not require nitrogen monitoring.

While substantial TN out-of-basin load reductions have occurred at some facilities by means of

[7] Estimated loading from TMDL, (see Appendix 3 to CT DEP "Report on Nitrogen Loads to Long Island Sound", April 1998)
[8] Reduction of 25% from baseline loading
[9] Estimated loading from 2013-2018 Discharge Monitoring Report data
[10] Highest load from the Connecticut River occurred in 2014
[11] Highest load from the Housatonic River occurred in 2018
[12] Highest load from the Thames River occurred in 2014

optimization requirements alone, concerns raised in recent public comments by the downstream state (Connecticut) and concerned citizens[13] have 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 TMDL WLA of 19,657 lb/day and to ensure that current reductions in loading do not increase, given the continued impairment status of LIS.

After further review of the federal and state requirements, EPA agrees with the concerns raised by the downstream state and the public. As discussed in Section 2 of this Fact Sheet, statutory and regulatory requirements regarding the development of water quality-based effluent limits include provisions to ensure implementation of any available WLAs[14], provisions to prevent further degradation of receiving waters that are already impaired[15] and consideration of applicable water quality requirements of downstream states[16].

The optimization requirements included, in many out-of-basin permits issued in the LIS watershed since 2007, have resulted in nitrogen reductions by means of utilizing the available equipment to minimize discharges of nitrogen. However, these requirements by themselves are not enforceable effluent limits that would prevent further increases in nitrogen due to population growth or new industrial dischargers. Enforceable effluent limits will ensure that as communities experience new residential, commercial and industrial growth, the nitrogen load from their POTWs do not cause or contribute to further degradation of LIS.

Therefore, EPA intends to include total nitrogen rolling annual average mass-based loading limits (in lb/day) and requirements to optimize current treatment systems to minimize the effluent nitrogen in all permits issued to wastewater treatment plants with design flow greater than or equal to 1.5 MGD that discharge to the LIS watershed in New Hampshire.

Table 3 summarizes the approach to update TN requirements for this and future permits in the LIS watershed in New Hampshire. EPA is also working with the States of Massachusetts and Vermont to ensure that comparable requirements are included in NPDES permits issued in those states and this is the first NH permit which will adopt this approach.

[13] Connecticut Department of Energy and Environmental Protection letters to EPA dated February 7, 2018 and April 27, 2018; Connecticut Fund for the Environment letter to EPA dated February 7, 2018; and Connecticut River Conservancy letter to EPA dated February 18, 2018.

[14] *See* 40 C.F.R. §122.44(d)(1)(vii)(B)

[15] *See* 40 C.F.R. § 122.44(d)(1)(vii)(B), 40 C.F.R. § 131.12(a)(1), and 314 CMR 4.04(1)

[16] *See* 40 C.F.R § 122.44(d)(4) and CWA section 401(a)(2)

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

Facility Design Flow, Q_D (MGD)	Number of Facilities	Annual Average TN Limit (lb/day)
$Q_D > 6$	0	Q_D (MGD) * 8 mg/L * 8.34 + optimize
$1.5 \leq Q_D \leq 6$	5	Q_D (MGD) * 10 mg/L * 8.34 + optimize
$0.1 \leq Q_D < 1.5$	14	Optimize
$Q_D < 0.1$	6	TN monitoring only

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. Facilities not currently engaged in optimization efforts will also be required to implement optimization measures, so that the aggregate 25% reduction is maintained or increased.

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 NHDES 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 facility is in the range of between 1.5 to 6 MGD, the annual loading TN limit calculated for the Draft Permit and following the approach outlined above is:

6 MGD * 10 mg/L * 8.345 = **501 lb/day**

The effluent limit is a rolling annual average based on the average of the current monthly average and the monthly average of the previous 11 months.

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[17]. 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 for the mouth of 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, allocations of total nitrogen loadings may be lowered if further reductions are necessary. If reductions are needed for the Keene 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 New Hampshire portion of the Connecticut River watershed.

Although not a permit requirement, it is recommended that any facilities planning that might be conducted for this facility consider alternatives for further enhancing nitrogen reduction beyond the requirements in this permit.

5.1.9.2 Phosphorus

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

The 2007 Permit includes a monthly average effluent limit of 0.2 mg/L effective in the warm months (April 1 to October 31) and a monthly average effluent limit of 1.0 mg/L effective in the cold months (November 1 to March 31). Review of the weekly monitoring data in the DMRs for the monitoring period shows that in the warm months the monthly average total phosphorus in

[17] For more information see http://longislandsoundstudy.net/about/our-mission/management-plan/hypoxia/

the effluent averaged 0.058 mg/L (ranging from 0 to 0.7 mg/L) and in the cold months, the monthly average total phosphorus averaged 0.1 mg/L (ranging from 0 to 0.6 mg/L).

To ensure that EPA's understanding of the anticipated behavior of dissolved and particulate phosphorus is correct, a monitoring requirement for ortho-phosphorus was included for the cold weather months (November 1st - March 31st) in the 2007 Permit. Ortho-phosphorus is a measure of the dissolved particulate fraction of phosphorus. Most of these samples resulted in non-detect readings, with only four detected values, including a high value of 0.2 mg/l.

The New Hampshire Surface Water Quality Regulations contain a narrative criterion, which limits phosphorus to the level that will not impair a water body's designated use. Specifically, Env-Wq 1703.14(b) states that, "Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring." Env-Wq 1703.14(c), further states that, "Existing discharges containing either phosphorus or nitrogen which encourage cultural eutrophication shall be treated to remove phosphorus or nitrogen to ensure attainment and maintenance of water quality standards." Cultural eutrophication is defined in Env-Wq 1702.15 as, "… the human-induced addition of wastes containing nutrients which results in excessive plant growth and/or decrease in dissolved oxygen."

In the absence of numeric criteria for phosphorus, EPA uses nationally recommended criteria and other technical guidance to develop effluent limitations for the discharge of phosphorus. EPA has published national guidance documents that contain recommended total phosphorus criteria and other indicators of eutrophication. EPA's 1986 *Quality Criteria for Water* (the "Gold Book") recommends that in-stream phosphorus concentrations not exceed 0.05 mg/L in any stream entering a lake or reservoir. 0.1 mg/L for any stream not discharging directly to lakes or impoundments, and 0.025 mg/L within a lake or reservoir. For this segment of the Ashuelot River, the 0.1 mg/L would apply downstream of the discharge.

More recently, EPA has released recommended Ecoregional Nutrient Criteria, established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published criteria represent conditions in waters within ecoregions that are minimally impacted by human activities, and thus free from the effects of cultural eutrophication. The Keene WWTP is located within Ecoregion VIII, Nutrient-Poor, Largely Glaciated Upper Midwest and Northeast. The recommended total phosphorus criterion for this ecoregion, found in Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion VIII (EPA, December 2001, EPA 822-B-01-015) is 10 μg/L (0.010 mg/L).

EPA uses the effects-based Gold Book threshold as a general target applicable in free-flowing streams. As the Gold Book notes, there are natural conditions of a water body that can result in either increased or reduced eutrophication response to phosphorus inputs; in some waters more stringent phosphorus reductions may be needed, while in some others a higher total phosphorus threshold could be assimilated without inducing a eutrophic response. In this case, EPA is not aware of any evidence that this segment of the Ashuelot River is unusually susceptible to eutrophication impacts, so that the 100 μg/L threshold appears sufficient in this receiving water.

EPA is not aware of evidence of factors that are reducing eutrophic response in the Ashuelot River downstream of the discharge.

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

The Volunteer River Assessment Program in New Hampshire has been taking instream samples of the Ashuelot River[18]. The sampling results from one of these stations, which is located 40 feet upstream of the Keene WWTP discharge, are shown below:

Table 4 – Instream Total Phosphorus Data

Year	2015	2016	2017	2018
Total Phosphorus, µg/L	18, 19, 27	15, 14, 21	12, 13	26, 19, 22, 19, 23

To determine whether the effluent has the reasonable potential to cause or contribute to an exceedance above the in-stream water quality criteria for phosphorus, 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.

Since phosphorus has an existing limit in the 2007 Permit, a reasonable potential determination is not applicable. In this case, EPA uses the mass balance equation presented in Appendix B to project the concentration downstream of the discharge. The limit is determined to be the more stringent of either (1) the existing limit or (2) the calculated effluent concentration (C_d) allowable to meet WQS based on current conditions. However, if the mass balance indicates that a less stringent effluent concentration (C_d) would meet WQS under current conditions, a case-by-case analysis must be done to determine if backsliding is allowable based on the exceptions found at 40 CFR § 122.44(l)(2)(i).

The results of this analysis for phosphorus are presented in Appendix B. The Draft Permit requires that a more stringent effluent limit of 0.18 mg/L for phosphorus be established to meet WQS. This analysis used the latest instream phosphorus data noted above and the updated 7Q10 flow described earlier in this Fact Sheet.

The winter limit of 1 mg/L total phosphorus during the period of November 1st through March 31st will also be maintained. The winter limitation was established to ensure that the higher levels of phosphorus discharged in the winter do not result in an accumulation of phosphorus in downstream sediments. The limitation assumes that the vast majority of the phosphorus

[18] https://www.des.nh.gov/organization/divisions/water/wmb/vrap/ashuelot/index.htm

discharged will be in the dissolved fraction and that dissolved phosphorus will pass through the system during the winter period. However, since the ortho-phosphorus monitoring has shown mostly non-detect readings, this indicates that the majority of phosphorus discharged will be in the particulate form. Therefore, the ortho-phosphorus monitoring has been eliminated from the Draft Permit while the winter limit of 1.0 mg/L will be maintained.

Finally, ambient monitoring for total phosphorus has been included in the Draft Permit to provide EPA with sufficient data to determine if the phosphorus limits in the permit continue to be protective in the future.

5.1.10 Metals

Dissolved fractions of certain metals in water can be toxic to aquatic life. Therefore, there is a need to limit toxic metal concentrations in the effluent where aquatic life may be impacted. For the development of the Draft Permit, analyses were completed to evaluate whether there is reasonable potential for effluent discharges to cause or contribute to exceedances of the water quality criteria for aluminum, cadmium, copper, lead, nickel and zinc and/or to evaluate whether any existing limits in the 2007 Permit for these metals continue to be protective, given the updated upstream hydrologic and chemical characteristics of the receiving water. The 2007 Permit included monthly average and daily maximum effluent limits for copper and zinc as well as a monthly average limit for lead. A summary of recent metals monitoring results is provided in Appendix A.

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

The criteria for cadmium, copper, lead, nickel and zinc are hardness-dependent using the equations in NH Env Wq-1703. The estimated hardness of the Ashuelot 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 36.7 mg/L and the corresponding criteria are also presented in Appendix B.

New Hampshire aluminum criteria are not hardness dependent and should be applied in terms of acid-soluble aluminum (*See* Table 1703-1, Note S). However, without site-specific data showing the fraction of downstream aluminum in the acid-soluble form, EPA assumes that the ratio of acid soluble to total recoverable aluminum is 1:1.

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.

For any metal with an existing limit in the 2007 Permit, a reasonable potential determination is not applicable, so the table indicates "N/A" for reasonable potential. In such cases, the same mass balance equation is used to determine if a more stringent limit would be required to meet WQS under current conditions. The limit is determined to be the more stringent of either (1) the existing limit or (2) the calculated effluent concentration (C_d) allowable to meet WQS based on current conditions. However, if the mass balance indicates that a less stringent effluent concentration (C_d) would meet WQS under current conditions, a case-by-case analysis must be done to determine if backsliding is allowable based on the exceptions found at 40 CFR § 122.44(l)(2)(i).

The results of this analysis for each metal are presented in Appendix B. The Draft Permit must continue to limit copper, lead, and zinc, while requiring the establishment of a new chronic aluminum limit.

The chronic and acute copper limits of 5.9 µg/L and 7.9 µg/L, respectively, are still protective and are carried forward in the Draft Permit.

The chronic and acute zinc limits of 77 µg/L and 77 µg/L, respectively, are still protective and are carried forward in the Draft Permit.

The chronic lead limit of 1.1 µg/L is still protective and is carried forward in the Draft Permit.

The Draft Permit establishes a chronic (monthly average) aluminum limit of 108 µg/L to meet WQS based on the reasonable potential analysis shown in Appendix B.

Aluminum Compliance Schedule

The Draft Permit includes a 3-year compliance schedule to meet the new aluminum limit of 108 µg/L in anticipation of an expected revision to the New Hampshire freshwater aluminum criteria. EPA finalized new aluminum criteria recommendations in December 2018 which are dependent on pH, dissolved organic carbon and hardness and which may be higher than New Hampshire's current criteria. Although New Hampshire is considering adopting EPA's 2018 aluminum criteria recommendations as state water quality criteria, it has not yet done so. EPA has therefore determined that it is appropriate to include a schedule of compliance, pursuant to 40 C.F.R. §122.47, in the Draft Permit which provides the Permittee with a 3-year period to achieve compliance with the final aluminum effluent limit. Additionally, the Permittee may apply for a permit modification to allow additional time for compliance if New Hampshire has adopted new aluminum criteria but has not yet submitted the criteria to EPA for review or EPA has not yet acted on the new criteria. If new aluminum criteria are adopted by New Hampshire and approved by EPA, and before the final aluminum effluent limit goes into effect, the Permittee may apply for a permit modification to amend the permit based on the new criteria. If warranted by the new criteria and a reasonable potential analysis, EPA may relax or remove the effluent limit to the extent consistent with anti-degradation requirements. Such relaxation or removal would not trigger anti-backsliding requirements as those requirements do not apply to effluent limits which have yet to take effect pursuant to a schedule of compliance. *See American Iron and Steel Institute v. EPA,* 115 F.3d 979, 993 n.6 (D.C. Cir. 1997) ("EPA interprets §402 to allow later relaxation of [an effluent limit] so long as the limit has yet to become effective."]

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 § 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on WQSs. Under certain narrative State WQSs, and §§ 301, 303 and 402 of the CWA, EPA and the States may establish toxicity-based limitations to implement the narrative "no toxics in toxic amounts". New Hampshire statute and regulations state that, "*all surface waters shall be free from toxic substances or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans, or aquatic life....*" (N.H. RSA 485-A:8, VI and the N.H. Code of Administrative Rules, PART Env-Wq 1730.21(a)(1)).

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

In accordance with current EPA guidance, 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 less than 10 require acute and chronic toxicity testing four times per year for two species. Additionally, for discharges with dilution factors less than 10, the C-NOEC effluent limit should be greater than or equal to the receiving water concentration and the LC_{50} limit should be greater than or equal to 100%.

The chronic and acute WET limits in the 2007 Permit are C-NOEC greater than or equal to 48% and LC_{50} greater than or equal to 100%, respectively, using the daphnid, *Ceriodaphnia dubia (C. dubia)*, and the fathead minnow (*pimephales promelas)*, as the test species. The Facility has consistently met these limits, as shown in Appendix A, with all results being 100% or ≥ 100%.

The chronic no observed effect concentration (C-NOEC) limit must is calculated using the instream waste concentration (IWC) of the effluent. The IWC is the inverse of the dilution factor (DF) and is calculated as follows:

IWC = 1/2.0 = 0.05, or a C-NOEC limit of ≥ **50%**

Since this limit is more stringent than the ≥ 48% limit that was established in the 2007 Permit that was based on the prior dilution factor of 2.08, the ≥ 50% limit has been established in this Draft Permit.

Based on the potential for toxicity from domestic and industrial contributions, the state narrative water quality criterion, the dilution factor of 2.0, and in accordance with EPA national and regional policy and 40 C.F.R. § 122.44(d), the Draft Permit continues the WET limits from the 2007 Permit including the test organisms and frequency of once per year. Toxicity testing must be performed in accordance with the updated EPA Region 1 test WET test procedures and protocols specified in Attachments A and B of the Draft Permit (USEPA Region 1 Freshwater Acute Toxicity Test Procedure and Protocol, February 2011 and USEPA Region 1 Freshwater Chronic Toxicity Test Procedure and Protocol, March 2013).

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.

5.2 Industrial Pretreatment Program

The permittee is required to administer a pretreatment program based on the authority granted under 40 C.F.R. 122.44(j), 40 C.F.R. § 403 and Section 307 of the Act. The permittee's pretreatment program received EPA approval on November 6, 1984 and appropriate pretreatment program requirements were incorporated into the 2007 Permit, which were consistent with that approval and federal pretreatment regulations in effect when the 2007 Permit was issued.

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

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

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

5.3 Sludge Conditions

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

Presently, sludge is hauled offsite by a commercial firm, Waste Management of New Hampshire, at its municipal solid waste landfill located in Rochester, NH. The Keene WWTP generated 770 dry metric tons of sludge in 2017 that was sent to this landfill. Sampling of sewage sludge shall use the procedures detailed in 40 C.F.R. § 503.8.

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.

Part I.C. of the Draft Permit includes a requirement for the Permittee and each co-Permittee to control infiltration and inflow (I/I) within the sewer collections system that it owns and operates. Each co-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 of the Sewer System

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

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

Several of the requirements in the Draft Permit are not included in the 2007 Permit, including collection system mapping, and preparation of a collection system operation and maintenance plan. EPA has determined that these additional requirements are necessary to ensure the proper operation and maintenance of the collection system and has included schedules in the Draft Permit for completing these requirements.

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

5.6 Standard Conditions

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

6 Federal Permitting Requirements

6.1 Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA), grants authority and imposes requirements on Federal agencies regarding endangered or threatened species of fish, wildlife, or plants (listed species) and habitat of such species that has been designated as critical (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 § 7 consultations for freshwater species. The National Oceanic and Atmospheric Administration Fisheries Service (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. The Draft Permit is intended to replace the 2007 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, when required under Section 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. There are no known federally listed threatened or endangered species or their critical habitat under the jurisdiction of NOAA Fisheries within the vicinity of the Keene WWTP discharge.[19] Therefore, ESA consultation with NOAA Fisheries will not be required for this discharge.

For protected species under the jurisdiction of the USFWS, two listed threatened species, the northern long-eared bat (*Myotis septentrionalis*) and the dwarf wedge mussel (*Alasmidonta heterodon*) were identified as potentially occurring in the action area of the Keene WWTP.[20]

According to the USFWS, the threatened northern long-eared bat is found in "winter – mines and caves, summer – wide variety of forested habitats. This species is not aquatic, so the Facility discharge will have no direct effect on this mammal. Further, the permit action is also expected to have no indirect effect on the species because it is not expected to impact insects, the primary prey of the northern long-eared bat. Therefore, the proposed permit action is deemed

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[19] See §7 resources for NOAA Fisheries at https://www.fisheries.noaa.gov/resource/map/greater-atlantic-region-esa-section-7-mapper.

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

to have no impact on this listed species.

Regarding the dwarf wedgemussel, EPA performed a preliminary species review. As part of the 2007 Permit reissuance, EPA obtained the following information from the USFWS related to the dwarf wedgemussel. This mussel is expected to inhabit multiple locations in the Ashuelot River. Freshwater mussel communities, including the dwarf wedge mussel, have been sighted immediately downstream of the Keene WWTP effluent discharge. An August 2003 report titled, *Freshwater Mussels of the Ashuelot River* (2003 Report), noted that,

> "Results do not indicate that the wastewater treatment plant is affecting the mussel community...All species found at Site 9 [area extending 200 yards from outfall] were present on the right side of the river less than 20 yards downstream of the outfall, meaning that these animals were living almost entirely within the effluent plume. Animals appeared healthy and there was no evidence of mortality. Site 10 is located 700 yards downstream from the outfall and it supported the highest richness and abundance of all surveys." (p. 8).

The dwarf wedgemussel community is still present in the vicinity of the discharge. EPA is not aware of any recent studies that have been conducted by USFWS in this vicinity of the Ashuelot River, but a dam has been removed downstream. Streambank erosion, which is a concern for this species, is not considered to be a potential effect of the Facility's discharge. The effluent is split into 2 separate pipes that discharge to the Ashuelot and these pipes are often submerged. This design is believed to minimize any potential for erosion to occur along the streambank in the vicinity of the discharge points.

EPA has initiated pre-consultation with USFWS to determine the level of consultation needed for this federal action.

6.2 Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (*see* 16 U.S.C. § 1801 et seq., 1998), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat". *See* 16 U.S.C. § 1855(b).

The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". *See* 16 U.S.C. § 1802(10). "Adverse impact" means any impact that reduces the quality and/or quantity of EFH, 50 C.F.R. § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

EFH is only designated for fish species for which federal Fisheries Management Plans exist. *See* 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

The Connecticut River and its tributaries, including the Ashuelot River, are designated EFH for Atlantic salmon (*Salmo salar*). According to New Hampshire Fish and Game Department (NHFGD), the former stocking of Atlantic salmon fry that was conducted in tributaries upstream from the Keene WWTP was discontinued during the permit term. Although the presence of this species may be in question since the termination of the stocking program, EPA has taken the conservative approach and decided that one or more lifestages of Atlantic salmon may be present within the area which encompasses the discharge site. EPA has concluded that the limits and conditions contained in the Draft Permit minimize adverse effects to Atlantic Salmon EFH for the following reasons:

EPA's Finding of all Potential Impacts to EFH Species

- This Draft Permit action does not constitute a new source of pollutants. It is the reissuance of an existing NPDES permit;

- The facility withdraws no water from the Ashuelot River, so no life stages of EFH species are vulnerable to impingement or entrainment;

- Acute toxicity tests will be conducted once a year to ensure that the discharge does not present toxicity problems;

- Total suspended solids, biochemical oxygen demand, fecal coliform, pH, dissolved oxygen, total recoverable lead, total recoverable copper, total recoverable aluminum, total recoverable zinc, ammonia nitrogen, total nitrogen and total phosphorus are regulated by the Draft Permit to meet water quality standards;

- The Draft Permit prohibits the discharge of pollutants or combination of pollutants in toxic amounts;

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

- The Draft Permit prohibits violations of the state water quality standards.

EPA believes that the conditions and limitations contained within the Keene WWTP Draft Permit adequately protects all aquatic life, including EFH designated for Atlantic salmon in the receiving water. 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 Division will be contacted and an EFH consultation will be re-initiated.

At the beginning of the public comment period, EPA notified NOAA Fisheries Habitat 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 that will be sent to the NOAA Fisheries Habitat Division during the public comment period.

7 Public Comments, Hearing Requests and Permit Appeals

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

George Papadopoulos
EPA New England, Region 1
5 Post Office Square, Suite-100 (06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1539, FAX: (617)918-0539
Email: papadopoulos.george@epa.gov

Prior to the close of the public comment period, any person may submit a written request to EPA and the State Agency 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 C.F.R. § 124.12 are satisfied. In reaching a final decision on the Draft Permit, EPA will respond to all significant comments in a Response to Comments document attached to the Final Permit and make these responses available to the public at EPA's Boston office and on EPA's website.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision, forward a copy of the final decision to the applicant, and provide a copy or notice of availability of the final decision to each person who 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 C.F.R. § 124.19.

8 Administrative Record

The administrative record on which this Draft Permit is based may be accessed, by appointment, at EPA's Boston office between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from George Papadopoulos, EPA Region1, 5 Post Office Square, Suite-100 (06-1), Boston, MA 02109-3912 or via email to papadopoulos.george@epa.gov.

May 2020
Date

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

Figure 1: Location of the Keene WWTP

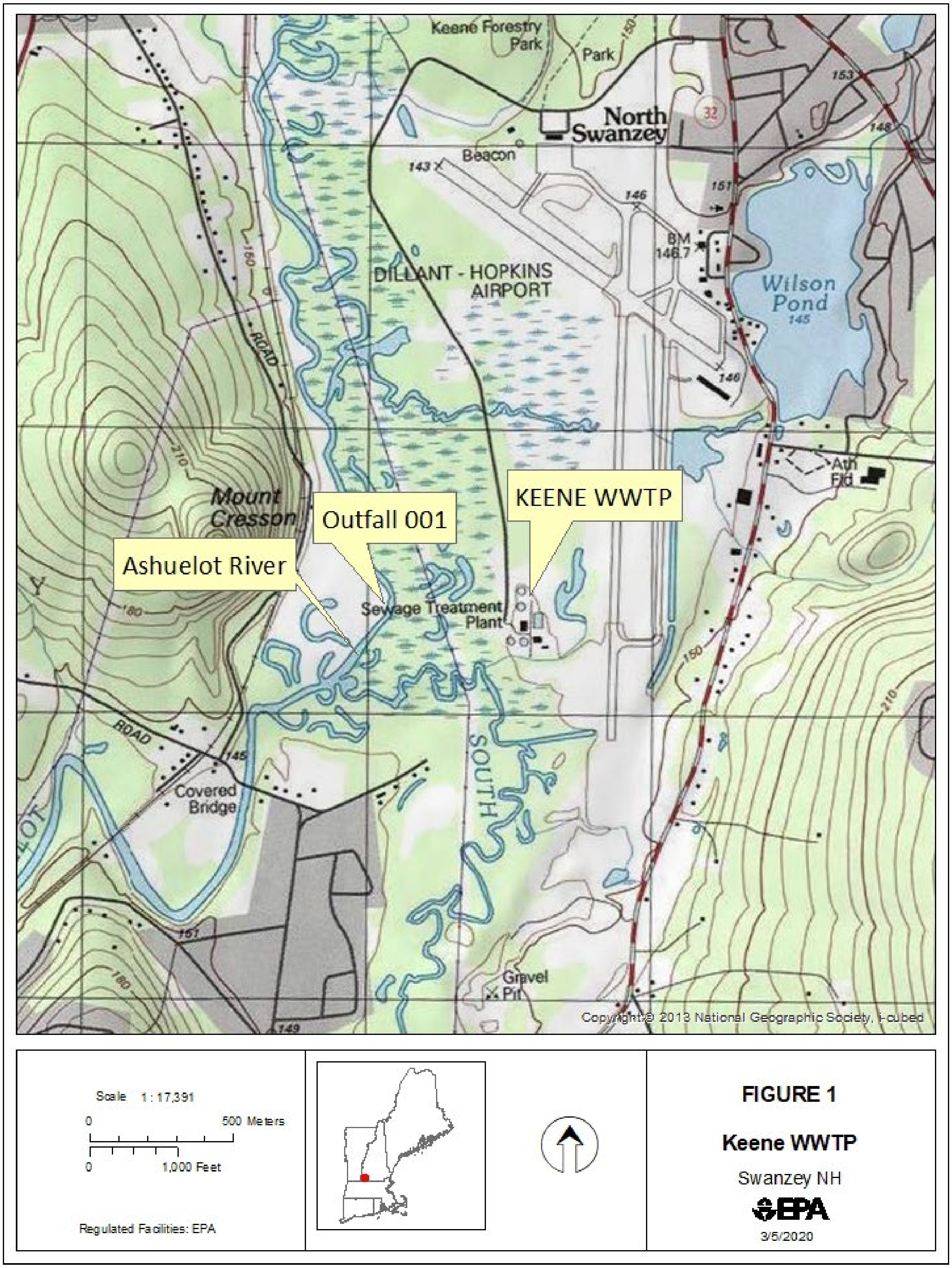
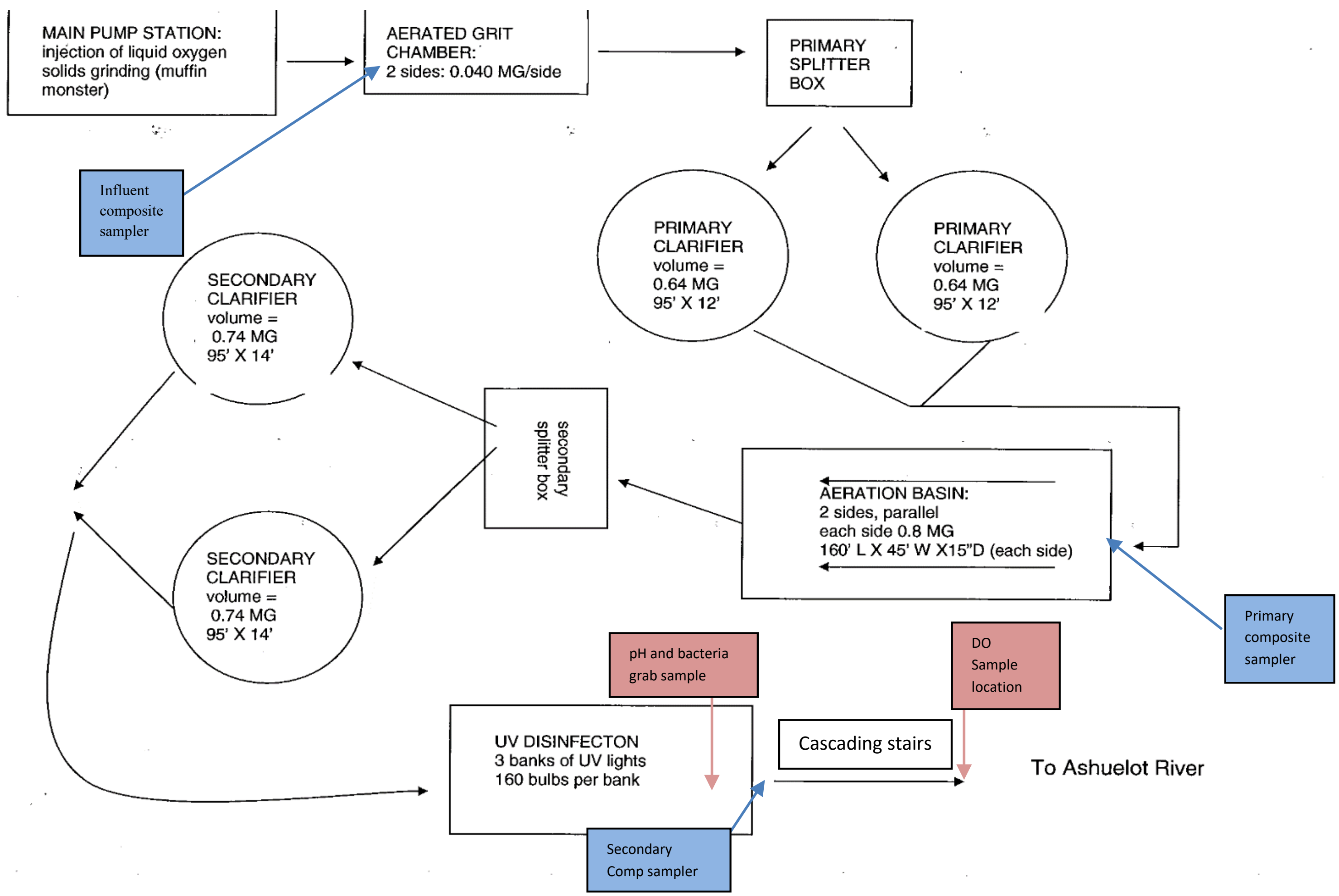


Figure 2: Keene WWTP Flow Diagram



Outfall 001 Effluent Data

Parameter	Flow	Flow	CBOD5	CBOD5	CBOD5	CBOD5	CBOD5	CBOD5
	Monthly Ave	Daily Max	Monthly Ave	Monthly Ave	Weekly Ave	Weekly Ave	Daily Max	Daily Max
Units	**MGD**	**MGD**	**lb/d**	**mg/L**	**lb/d**	**mg/L**	**lb/d**	**mg/L**
Effluent Limit	**Report**	**Report**	**1252**	**25**	**2003**	**40**	**2253**	**45**
Minimum	**1.677**	**1.917**	**9**	**0.8**	**12**	**1**	**12**	**1**
Maximum	**5.19**	**9.108**	**54**	**2**	**111**	**4**	**111**	**5**
Median	**2.647**	**3.624**	**23**	**1**	**29**	**1**	**31**	**1.2**
No. of Violations	**N/A**	**N/A**	**0**	**0**	**0**	**0**	**0**	**0**
10/31/2014	2.682	3.963	25	1	31	2	35	2
11/30/2014	2.453	2.743	20	1	27	1	24	1
12/31/2014	3.266	4.443	33	1	38	2	44	2
1/31/2015	2.742	3.677	22	1	42	1	24	1
2/28/2015	2.216	2.41	15	1	16	1	19	1
3/31/2015	2.448	3.624	21	1	23	1	29	1
4/30/2015	3.395	3.917	32	1	29	1	32	1
5/31/2015	2.204	2.785	15	1	32	1	18	1
6/30/2015	2.114	2.543	19	1	23	1	23	1
7/31/2015	2.021	2.512	16	1	20	1	17	1
8/31/2015	2.024	4.197	15	1	20	1	22	1
9/30/2015	2.057	4.895	20	1	23	1	41	2
10/31/2015	2.66	4.972	16	1	28	1	19	1
11/30/2015	2.559	3.067	20	1	24	1	27	1
12/31/2015	2.689	3.722	25	1	32	2	45	2
1/31/2016	2.916	3.5	18	1	22	1	20	1
2/29/2016	3.568	8.168	34	1	43	2	52	2
3/31/2016	3.859	5.466	33	1	34	1	63	2
4/30/2016	3.097	3.86	49	2	68	3	109	5
5/31/2016	2.275	2.679	37	2	70	4	92	5
6/30/2016	2	2.316	14	1	17	1	17	1
7/31/2016	1.85	2.167	9	1	12	1	12	1
8/31/2016	1.933	2.304	21	1	18	1	28	2
9/30/2016	1.911	2.628	22	1	32	2	37	2
10/31/2016	1.76	2.264	16	1	18	1	20	1
11/30/2016	1.802	2.092	19	1	22	1	30	2
12/31/2016	1.957	2.657	20	1	27	2	23	1
1/31/2017	2.167	2.548	23	1	26	1	29	2
2/28/2017	2.336	4.497	28	1	29	2	40	2
3/31/2017	2.8	3.987	22	1	31	1	28	1

Outfall 001 Effluent Data

Parameter	Flow	Flow	CBOD5	CBOD5	CBOD5	CBOD5	CBOD5	CBOD5
	Monthly Ave	Daily Max	Monthly Ave	Monthly Ave	Weekly Ave	Weekly Ave	Daily Max	Daily Max
Units	MGD	MGD	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L
Effluent Limit	Report	Report	1252	25	2003	40	2253	45
4/30/2017	4.344	6.916	37	1	38	1	47	2
5/31/2017	3.786	5.559	38	1	44	1	47	2
6/30/2017	3.426	5.642	47	1	68	2	75	2
7/31/2017	2.711	3.361	35	2	46	2	48	2
8/31/2017	2.159	2.915	24	1	30	2	32	2
9/30/2017	2.161	2.666	15	0.8	24	1	20	1
10/31/2017	2.351	9.108	23	1	31	2	39	2
11/30/2017	2.836	4.4	19	1	33	1	26	1
12/31/2017	2.086	2.53	23	1	28	2	31	2
1/31/2018	3.286	6.94	29	1	36	2	40	2
2/28/2018	3.454	4.679	26	1	28	1	28	1
3/31/2018	3.804	6.284	28	1	30	1	36	1
4/30/2018	3.316	3.801	23	0.8	46	2	91	3
5/31/2018	2.718	3.348	NODI: B	NODI: B	NODI: B	NODI: B	NODI: B	NODI: B
6/30/2018	2.092	2.817	16	1	19	1	36	2
7/31/2018	2.38	3.31	16	1	18	1	20	1
8/31/2018	4.078	6.501	33	1	41	1	41	1
9/30/2018	3.219	4.63	23	1	26	1	31	1
10/31/2018	3.488	4.641	26	1	29	1	31	1
11/30/2018	5.19	7.211	54	1	64	1	64	1
12/31/2018	3.584	5.029	29	1	33	1.3	32	1.3
1/31/2019	3.182	5.025	30	1.2	37	1.8	38	1.9
2/28/2019	2.647	3.262	33	2	44	2	47	2
3/31/2019	2.41	3.17	33	2	41	2	47	2
4/30/2019	3.937	6.595	38	1	111	3	111	3
5/31/2019	3.436	4.63	NODI: B	NODI: B	NODI: B	NODI: B	NODI: B	NODI: B
6/30/2019	2.699	3.417	29	1.3	29	1.3	33	1.4
7/31/2019	2.106	2.63	22	1.2	24	1.3	26	1.4
8/31/2019	1.825	2.602	17	1.1	19	1.2	19	1.2
9/30/2019	1.677	1.917	13	1.1	14	1.1	17	1.1
10/31/2019	1.865	2.702	13	0.9	19	1.1	19	1.1

Outfall 001 Effluent Data

Parameter	CBOD5	TSS	TSS	TSS	TSS	TSS	TSS	TSS
	Monthly Ave Min	Monthly Ave	Monthly Ave	Weekly Ave	Weekly Ave	Daily Max	Daily Max	Monthly Ave Min
Units	%	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	%
Effluent Limit	85	1502	30	2253	45	2504	50	85
Minimum	98.8	8	0.4	20	0.7	27	1	98.1
Maximum	99.8	128	5	298	12	668	29	99.9
Median	99.4	36	2	53	3	70	3	99.4
No. of Violations	0	0	0	0	0	0	0	0
10/31/2014	99.5	49	2	76	5	88	4	99.3
11/30/2014	99.5	17	1	40	2	52	2	99.7
12/31/2014	98.9	36	1	48	2	87	4	99.4
1/31/2015	99.4	35	1	49	2	68	3	99.4
2/28/2015	99.6	20	1	45	2	56	3	99.7
3/31/2015	99.5	23	1	42	2	59	3	99.6
4/30/2015	99.1	19	0.7	22	0.7	56	2	99.7
5/31/2015	99.6	14	1	34	2	53	3	99.8
6/30/2015	99.5	34	2	87	5	207	12	99.5
7/31/2015	99.6	15	1	20	1	41	2	99.8
8/31/2015	99.7	15	1	22	1.5	42	2	99.8
9/30/2015	99.5	22	1	37	2	60	3	99.7
10/31/2015	99.6	8	0.4	26	1	33	1	99.9
11/30/2015	99.6	26	1	58	3	89	4	99.6
12/31/2015	99.5	40	2	63	3	114	5	99.5
1/31/2016	99.5	39	2	49	2	55	2	99.3
2/29/2016	99.3	46	2	62	3	107	5	99.3
3/31/2016	99.4	51	2	95	2	120	4	99.4
4/30/2016	99	128	5	230	10	386	17	98.4
5/31/2016	99	93	5	221	12	566	29	98.7
6/30/2016	99.7	33	2	44	2	56	3	99.6
7/31/2016	99.8	14	1	24	1	27	2	99.9
8/31/2016	99.5	22	1	25	1	62	3	99.7
9/30/2016	99.5	27	2	53	3	41	3	99.6
10/31/2016	99.6	19	1	50	4	85	6	99.7
11/30/2016	99.6	26	2	50	3	96	6	99.6
12/31/2016	99.5	16	1	28	2	34	2	99.7
1/31/2017	99.4	18	1	33	2	44	2	99.6
2/28/2017	99.1	30	2	44	3	59	3	99.3
3/31/2017	99.3	40	2	61	2	70	3	99.2

Outfall 001 Effluent Data

Parameter	CBOD5	TSS	TSS	TSS	TSS	TSS	TSS	TSS
	Monthly Ave Min	Monthly Ave	Monthly Ave	Weekly Ave	Weekly Ave	Daily Max	Daily Max	Monthly Ave Min
Units	%	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	%
Effluent Limit	**85**	**1502**	**30**	**2253**	**45**	**2504**	**50**	**85**
4/30/2017	98.9	57	2	91	3	155	4	99.1
5/31/2017	99.1	95	3	146	4	231	7	98.8
6/30/2017	99.1	77	3	121	3	156	4	99.1
7/31/2017	99	43	2	72	3	67	3	99.4
8/31/2017	99.2	32	2	38	2	60	3	99.5
9/30/2017	99.6	39	2	48	2	76	4	99.4
10/31/2017	99.5	98	3	60	3	668	9	99.2
11/30/2017	99.4	69	4	298	5	105	7	98.7
12/31/2017	99.1	87	5	102	7	123	8	98.1
1/31/2018	98.8	72	4	149	10	178	12	98.2
2/28/2018	99	58	2	85	3	158	6	98.6
3/31/2018	98.9	83	3	94	4	138	5	98.3
4/30/2018	99.1	11	0.4	30	1	55	2	99.8
5/31/2018	NODI: Q	32	2	41	3	59	3	99.2
6/30/2018	99.5	47	3	58	3	83	4	99.3
7/31/2018	99.6	32	2	55	3	65	3	99.5
8/31/2018	98.9	42	1	60	2	64	2	99.3
9/30/2018	99.5	36	1	51	2	78	3	99.6
10/31/2018	99.4	51	2	96	3	116	3	99.4
11/30/2018	98.9	126	3	134	4	159	7	98.8
12/31/2018	99.2	47	2	72	3	80	4	99.2
1/31/2019	99	61	3	80	4	111	4	98.8
2/28/2019	99.1	44	2	54	3	71	3	99.2
3/31/2019	98.9	36	2	53	3	61	3	99.2
4/30/2019	99	40	1	84	3	92	3	99.5
5/31/2019	NODI: Q	43	2	51	2	65	2	99.4
6/30/2019	99.2	60	3	91	4	122	5	99.3
7/31/2019	99.4	24	1.3	54	2.7	58	2.8	99.7
8/31/2019	99.4	20	1.3	39	2.5	51	3.2	99.8
9/30/2019	99.5	17	1.3	27.3	2.1	32	3.2	99.7
10/31/2019	99.7	36	2.3	44	3.1	50	3.8	99.6

Outfall 001 Effluent Data

Parameter	pH	pH	E. coli	E. coli	DO	Ammonia	Ammonia	Ammonia
	Minimum	Maximum	Monthly Geometric Mean	Daily Max	Minimum	Monthly Ave	Monthly Ave	Monthly Ave
Units	SU	SU	#/100mL	#/100mL	mg/L	lb/d	mg/L	lb/d
Effluent Limit	**6.5**	**8**	**126**	**406**	**7**	**600**	**12**	**105**
Minimum	**6.3**	**6.8**	**1**	**0**	**7.1**	**2**	**0.1**	**1**
Maximum	**6.7**	**9.5**	**11**	**1203**	**9.3**	**230**	**7**	**39**
Median	**6.5**	**7**	**2**	**9**	**8.3**	**35**	**1.5**	**4**
No. of Violations	**3**	**4**	**0**	**2**	**0**	**0**	**0**	**0**
10/31/2014	6.7	7.8	4	44	7.6			8
11/30/2014	6.5	7.2	2	6	7.8	7	0.3	
12/31/2014	6.5	7.2	1	1	7.3	24	0.9	
1/31/2015	6.5	7	1	4	7.8	41	1.7	
2/28/2015	6.6	6.9	3	**1203**	8.2	34	1.8	
3/31/2015	6.5	6.9	3	16	9.3	58	2.7	
4/30/2015	6.5	6.8	2	9	8.1	95	4	
5/31/2015	6.5	6.8	1	6	8.3	72	3.5	
6/30/2015	6.5	7	1	4	8.3			7
7/31/2015	6.6	6.9	1	7	7.9			7
8/31/2015	6.5	7	2	9	8.2			2
9/30/2015	6.6	7	6	**687**	8			2
10/31/2015	6.7	7	4	14	8.3			4
11/30/2015	6.6	6.9	8	15	8.7	25	1	
12/31/2015	6.5	6.9	4	10	9	28	1	
1/31/2016	6.6	6.8	1	4	9.3	88	3.6	
2/29/2016	6.5	7	2	37	7.4	96	3.7	
3/31/2016	6.6	6.9	2	6	8.8	230	7	
4/30/2016	6.6	6.9	2	6	8.6	42	1.6	
5/31/2016	6.6	7.2	2	15	8.7	5	0.2	
6/30/2016	6.6	7	2	27	8.3			1
7/31/2016	6.6	7.1	1	3	8.1			2
8/31/2016	6.6	7.1	2	7	8			5
9/30/2016	6.6	7.2	5	17	8			2
10/31/2016	6.6	6.9	2	8	8.4			5
11/30/2016	6.6	6.9	2	8	8.6	9	0.5	
12/31/2016	6.6	7	1	2	8.7	18	1	
1/31/2017	6.6	7	3	9	9.3	36	2	
2/28/2017	6.6	7	2	5	8.8	134	6.2	
3/31/2017	6.6	7	1	10	8.3	129	5.4	

Outfall 001 Effluent Data

Parameter	pH	pH	E. coli	E. coli	DO	Ammonia	Ammonia	Ammonia
	Minimum	Maximum	Monthly Geometric Mean	Daily Max	Minimum	Monthly Ave	Monthly Ave	Monthly Ave
Units	SU	SU	#/100mL	#/100mL	mg/L	lb/d	mg/L	lb/d
Effluent Limit	**6.5**	**8**	**126**	**406**	**7**	**600**	**12**	**105**
4/30/2017	6.5	6.8	4	96	8.1	35	1	
5/31/2017	6.5	6.9	4	81	8.5	11	0.3	
6/30/2017	6.6	7	2	4	8.3			7
7/31/2017	6.7	7.3	2	5	8.3			4
8/31/2017	6.7	7.1	3	20	8			2
9/30/2017	6.7	7	2	6	8.2			5
10/31/2017	6.5	7.2	6	161	7.1			39
11/30/2017	6.6	6.9	3	8	9	10	0.4	
12/31/2017	6.5	7	2	5	9	2	0.1	
1/31/2018	6.5	7.2	11	69	8.3	107	3.5	
2/28/2018	6.5	7.9	6	25	8.9	202	6.7	
3/31/2018	6.5	**8.1**	6	25	9.2	106	3.3	
4/30/2018	6.7	8	2	11	8.8	42	1.5	
5/31/2018	**6.4**	**9.5**	1.4	6	8.9	4	0.2	
6/30/2018	6.6	7.2	2	10	8.5			2
7/31/2018	6.5	**8.5**	2	3	8			4
8/31/2018	6.5	7.1	4	26	7.8			3
9/30/2018	6.5	7.4	3.4	16	7.9			6
10/31/2018	6.5	7.2	2.5	13	8.3			2
11/30/2018	6.5	7.1	7	<= 63	7.9	10	0.2	
12/31/2018	6.5	7.8	2.2	6	8.7	3	0.1	
1/31/2019	**6.3**	7.2	2.4	9	9	2	0.1	
2/28/2019	6.5	7.1	2	12	8.8	13	0.6	
3/31/2019	**6.4**	7.2	3	131	8.9	74	4.1	
4/30/2019	6.5	8	2	9	8.3	97	3	
5/31/2019	6.5	7	1.2	2	8.1	13	0.4	
6/30/2019	6.5	**8.4**	2.6	24	8.2			15
7/31/2019	6.5	7.4	2	12	8.3			2
8/31/2019	6.5	7.5	2	8	8.3			8
9/30/2019	6.5	7	1.5	5	8.3			2
10/31/2019	6.5	7	1.7	8	8.4			1

Outfall 001 Effluent Data

Parameter	Ammonia	Ammonia	Ammonia	TP	TP	TP	Dissolved orthophosphate	Dissolved orthophosphate
	Monthly Ave	Daily Max	Daily Max	Monthly Ave	Monthly Ave	Daily Max	Monthly Ave	Daily Max
Units	mg/L	lb/d	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Effluent Limit	**2.1**	**155**	**3.1**	**0.2**	**1**	**Report**	**Report**	**Report**
Minimum	**0.07**	**2**	**0.1**	**0**	**0**	**0**	**0**	**0**
Maximum	**1.1**	**243**	**3.2**	**0.2**	**0.3**	**0.7**	**0.1**	**0.2**
Median	**0.2**	**9**	**0.465**	**0.1**	**0.1**	**0.1**	**0**	**0**
No. of Violations	**0**	**1**	**1**	**0**	**0**	**N/A**	**N/A**	**N/A**
10/31/2014	0.3	54	2.2	0.1		0.1		
11/30/2014					0.1	0.1	0	0.1
12/31/2014					0	0.1	0	0
1/31/2015					0.1	0.1	0	0
2/28/2015					0.1	0.1	0	0
3/31/2015					0.1	0.1	0	0
4/30/2015				0		0.1		
5/31/2015				0		0	0	0
6/30/2015	0.3	29	1.4	0		0.1		
7/31/2015	0.4	13	0.8	0		0.1		
8/31/2015	0.1	7	0.3	0		0.1		
9/30/2015	0.1	5	0.3	0.1		0.2		
10/31/2015	0.2	14	0.8	0.1		0.1		
11/30/2015					0	0.1	0	0
12/31/2015					0.1	0.2	0	0
1/31/2016					0	0.1	0	0
2/29/2016					0.1	0.3	0	0
3/31/2016					0.1	0.1	0	0
4/30/2016				0.1		0.2		
5/31/2016				0.1		0.3	0	0
6/30/2016	0.1	2	0.1	0		0		
7/31/2016	0.1	5	0.3	0		0		
8/31/2016	0.3	12	0.8	0		0.1		
9/30/2016	0.2	7	0.4	0.1		0.2		
10/31/2016	0.4	23	1.7	0		0.3		
11/30/2016					0.1	0.2	0	0
12/31/2016					0.1	0.2	0	0
1/31/2017					0	0.1	0	0
2/28/2017					0.1	0.1	0	0
3/31/2017					0.1	0.1	0	0

Outfall 001 Effluent Data

Parameter	Ammonia	Ammonia	Ammonia	TP	TP	TP	Dissolved orthophosphate	Dissolved orthophosphate
	Monthly Ave	Daily Max	Daily Max	Monthly Ave	Monthly Ave	Daily Max	Monthly Ave	Daily Max
Units	mg/L	lb/d	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Effluent Limit	2.1	155	3.1	0.2	1	Report	Report	Report
4/30/2017				0		0.1		
5/31/2017				0.1		0.2	0	0
6/30/2017	0.2	21	0.6	0.1		0.1		
7/31/2017	0.2	9	0.4	0.1		0.1		
8/31/2017	0.1	8	0.4	0.1		0.1		
9/30/2017	0.3	9	0.6	0.1		0.1		
10/31/2017	1.1	243	3.2	0.1		0.7		
11/30/2017					0.1	0.3	0	0.2
12/31/2017					0.3	0.6	0	0
1/31/2018					0.2	0.5	0	0
2/28/2018					0.1	0.1	0	0.1
3/31/2018					0.1	0.2	0	0.1
4/30/2018				0.2		0.3		
5/31/2018				0		0.1	0	0
6/30/2018	0.1	4	0.2	0.1		0.1		
7/31/2018	0.2	11	0.53	0		0.1		
8/31/2018	0.1	6	0.2	0		0.1		
9/30/2018	0.2	24	0.8	0.1		0.1		
10/31/2018	0.1	9	0.3	0.1		0.1		
11/30/2018					0.1	0.1	0	0
12/31/2018					0.1	0.1	0	0
1/31/2019					0.1	0.2	0	0.1
2/28/2019					0.2	0.3	0.1	0.2
3/31/2019					0.1	0.2	0	0.1
4/30/2019				0.1		0.1		
5/31/2019				0		0.1	0	0
6/30/2019	0.6	45	1.8	0.1		0.2		
7/31/2019	0.1	3.8	0.2	0		0		
8/31/2019	0.5	26	1.6	0		0.1		
9/30/2019	0.13	4.1	0.27	0.1		0.1		
10/31/2019	0.07	2.1	0.11	0.1		0.2		

Outfall 001 Effluent Data

Parameter	Aluminum	Aluminum	Copper	Copper	Lead	Lead	Zinc	Zinc
	Monthly Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	Daily Max
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Effluent Limit	Report	Report	5.9	7.9	1.1	Report	77	77
Minimum	0	0	0	0	0	0	0	0
Maximum	330	410	8.1	12.1	0	0	48	60
Median	57.5	67	1.5	3	0	0	24.5	26
No. of Violations	N/A	N/A	1	1	0	N/A	0	0
10/31/2014	110	122	8.1	12.1	0	0	25.5	27
11/30/2014	74	76	5.3	7.4	0	0	13.5	16
12/31/2014	80	103	4.3	4.7	0	0	12.5	13
1/31/2015	100	125	5.8	6.1	0	0	20	21
2/28/2015	64	84	1.5	2.9	0	0	20	22
3/31/2015	71	72	4.5	5	0	0	24	25
4/30/2015	70	80	0	0	0	0	19.5	20
5/31/2015	32	35	1.3	2.6	0	0	17.5	18
6/30/2015	68	96	1.6	3.2	0	0	18	18
7/31/2015	41	44	0	0	0	0	27.7	31
8/31/2015	51	63	3.3	3.5	0	0	29	30
9/30/2015	41	45	1.5	3	0	0	27	29
10/31/2015	34	38	2	4	0	0	23	26
11/30/2015	54	56	3	3	0	0	26	28
12/31/2015	42	46	3	3	0	0	38	50
1/31/2016	44	60	3.5	4	0	0	22	23
2/29/2016	70	79	3.5	3.8	0	0	24.5	26
3/31/2016	51	59	0	0	0	0	20	21
4/30/2016	88	106	3.1	3.2	0	0	24.5	25
5/31/2016	134	141	1.3	2.6	0	0	24	26
6/30/2016	19	38	4	4.8	0	0	30	30
7/31/2016	46	95	3.8	4.6	0	0	25	32
8/31/2016	29.5	31	1.4	2.7	0	0	19.5	20
9/30/2016	36	38	2	3	0	0	48	60
10/31/2016	53.5	58	4.5	4.6	0	0	30	30
11/30/2016	30.5	32	0	0	0	0	25	28
12/31/2016	42	44	1.4	2.8	0	0	33	36
1/31/2017	37	43	0	0	0	0	32	35
2/28/2017	73	95	0	0	0	0	23	27
3/31/2017	90.5	110	3	3.1	0	0	33.5	35

Outfall 001 Effluent Data

Parameter	Aluminum	Aluminum	Copper	Copper	Lead	Lead	Zinc	Zinc
	Monthly Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	Daily Max
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Effluent Limit	Report	Report	5.9	7.9	1.1	Report	77	77
4/30/2017	0	0	0	0	0	0	18	18
5/31/2017	140	190	1.3	2.5	0	0	19	20
6/30/2017	25	26	1.3	2.5	0	0	26.5	28
7/31/2017	70	86	0.8	2.5	0	0	20.3	24
8/31/2017	74	88	0	0	0	0	32	35
9/30/2017	64	67	0	0	0	0	24	24
10/31/2017	80	98	0	0	0	0	0	0
11/30/2017	112	140	1.6	3.2	0	0	19	26
12/31/2017	140	200	3.4	4.1	0	0	22.5	24
1/31/2018	330	410	5.8	6.8	0	0	21.5	25
2/28/2018	66.5	76	2.7	2.9	0	0	42	56
3/31/2018	31	33	1.3	2.6	0	0	15.5	16
4/30/2018	37	43	1.5	3	0	0	27	29
5/31/2018	44	47	0	0	0	0	29.5	30
6/30/2018	51	64	1.5	3	0	0	33	43
7/31/2018	40.3	46	3.8	5.1	0	0	32.3	42
8/31/2018	41.5	42	0	0	0	0	25.5	34
9/30/2018	57.5	76	1.9	3.7	0	0	29	32
10/31/2018	70	95	0	0	0	0	20.5	25
11/30/2018	91.5	96	1.5	2.9	0	0	17	20
12/31/2018	67	88	3.2	3.7	0	0	18.5	20
1/31/2019	94	150	1.4	2.7	0	0	20.5	23
2/28/2019	72	83	1.7	3.4	0	0	41.5	45
3/31/2019	60	63	3.5	3.7	0	0	31.5	36
4/30/2019	60	87	0	0	0	0	16	18
5/31/2019	41	42	0	0	0	0	19.5	20
6/30/2019	56.5	61	0	0	0	0	25.5	30
7/31/2019	33.3	36	3	3.2	0	0	25.7	29
8/31/2019	27	28	1.7	3.3	0	0	26	28
9/30/2019	41	44	0	0	0	0	19.5	23
10/31/2019	94	110	3.9	4.5	0	0	39	44

WET Effluent Data

Parameter	LC50 Acute Ceriodaphnia	LC50 Acute Pimephales	C-NOEC Chronic Ceriodaphnia	Noel Statre 7Day Chronic Pimephales	Ammonia	Cadmium	Nickel	Hardness
	Daily Min	Daily Min	Daily Min	Daily Min	Daily Max	Daily Max	Daily Max	Daily Max
Units	%	%	%	%	mg/L	mg/L	mg/L	mg/L
Effluent Limit	100	100	48	48	Report	Report	Report	Report
Minimum	100	100	100	100	0.09	0	0	47
Maximum	100	100	100	100	0.6	0	0	59
Median	100	100	100	100	0.15	0	0	56
No. of Violations	0	0	0	0	N/A	N/A	N/A	N/A
9/30/2015	100	100	100	100	0.6	0	0	49
9/30/2016	100	100	100	100	0.15	0	0	47
9/30/2017	100	100	100	100	0.1	0	0	59
9/30/2018	100	100	100	100	0.09	0	0	57
9/30/2019	100	100	100	100	0.22	0	0	56

WET Ambient Data

Parameter	Ammonia	Aluminum	Cadmium	Copper	Lead	Nickel	Zinc	Hardness
	Daily Max	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	mg/L
Effluent Limit	Report	Report	Report	Report	Report	Report	Report	Report
Minimum	0	0.04	0	0	0	0	0	9.6
Maximum	0.57	0.16	0	0.0022	0	0	0.027	33
Median	0.06	0.05	Non-Detect	Non-Detect	Non-Detect	Non-Detect	Non-Detect	21
No. of Violations	N/A	N/A	5	5	N/A	N/A	N/A	N/A
9/30/2015	0.57	0.054	<0.0002	<0.002	<0.0005	<0.005	0.027	21
9/30/2016	<0.06	0.04	<0.0002	<0.002	<0.0005	<0.005	<0.020	22
9/30/2017	0.06	0.16	<0.0002	<0.002	<0.001	<0.005	<0.020	9.6
9/30/2018	0.07	0.05	<0.0002	0.0022	<0.001	<0.005	<0.020	33
9/30/2019	<0.05	0.1	<0.0002	<0.002	<0.001	<0.005	<0.020	15

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 ($Q_s + Q_e$)

Solving for the downstream concentration results in:

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

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). 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	**Q_s**	**C_s [1]**	**Q_e**	**C_e [2]**		**Q_d**	**C_d**		**Criteria * 0.9**		**Reasonable Potential**		**Limits**	
	cfs	**mg/L**	**cfs**	**Acute (mg/L)**	**Chronic (mg/L)**	**cfs**	**Acute (mg/L)**	**Chronic (mg/L)**	**Acute (mg/L)**	**Chronic (mg/L)**	**C_e & C_d > Acute Criteria**	**C_e & C_d > Chronic Criteria**	**Acute (mg/L)**	**Chronic (mg/L)**
Ammonia (Warm)	11.4	0.06	9.29	3.1	2.1	20.69	1.4	1.0	13.5	1.4	N/A	N/A	3.1	2.1
Ammonia (Cold)		0.0		0.6	12.0		0.3	5.4	29.3	4.4	N	N/A	N/A	9.9
Phosphorus		0.02		N/A	0.20		N/A	0.10	N/A	0.090	N/A	N/A	N/A	0.18
		µg/L		**µg/L**	**µg/L**		**µg/L**	**µg/L**	**µg/L**	**µg/L**			**µg/L**	**µg/L**
Aluminum		54.0		131.2	131.2		88.7	88.7	675	78.3	N	**Y**	N/A	108
Cadmium		0.0		0.0	0.0		0.0	0.0	0.6	0.3	N	N	N/A	N/A
Copper		0.0		7.9	5.9		3.5	2.6	4.9	3.6	N/A	N/A	7.9	5.9
Lead		0.0		0.0	1.1		0.0	0.5	20.5	0.8	N	N/A	N/A	1.1
Nickel		0.0		0.0	0.0		0.0	0.0	180.9	20.1	N	N	N/A	N/A
Zinc		0.0		77.0	77.0		34.6	34.6	46.1	46.1	N/A	N/A	77.0	77.0

[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 ≥ 10) or maximum (for n < 10) concentrations from the DMR data and/or WET testing data during the review period (see Appendix A). If the metal already has a limit (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/year)
Total Massachusetts Out-of-Basin Load			**262**	**146**	**11,528**	**11,215**	**9,767**	**10,557**	**10,631**	**10,740**
Total Massachusetts Connecticut River Load			**179.6**	**98**	**9,184**	**8,945**	**7,695**	**8,390**	**8,341**	**8,511**
MA0101613	SPRINGFIELD REGIONAL WTP	POTW	67.00	36.26	2,303	2,377	1,643	1,953	1,684	1,992
MA0101508	CHICOPEE WPC	POTW	15.50	7.83	2,220	2,092	1,854	1,872	1,895	1,987
MA0101630	HOLYOKE WPCF	POTW	17.50	8.05	584	644	687	747	593	651
MA0101214	GREENFIELD WPCF	POTW	3.20	3.23	436	467	460	386	482	446
MA0100994	GARDNER WWTF	POTW	5.00	2.89	413	470	377	455	404	424
MA0101818	NORTHAMPTON WWTP	POTW	8.60	3.85	489	412	355	393	453	420
MA0100218	AMHERST WWTP	POTW	7.10	3.76	456	411	335	342	377	384
MA0100455	SOUTH HADLEY WWTF	POTW	4.20	2.37	393	325	288	364	315	337
MA0101478	EASTHAMPTON WWTP	POTW	3.80	3.44	202	186	262	329	639	324
MA0101800	WESTFIELD WWTP	POTW	6.10	2.88	276	225	221	189	211	224
MA0110264	AUSTRALIS AQUACULTURE, LLC	IND	0.30	0.13	149	138	116	107	74	117
MA0101168	PALMER WPCF	POTW	5.60	1.47	142	92	84	100	125	109
MA0100137	MONTAGUE WWTF	POTW	1.80	0.84	107	78	55	215	78	107
MA0100099	HADLEY WWTP	POTW	0.54	0.38	73	76	65	109	67	78
MA0100889	WARE WWTP	POTW	1.00	0.55	62	89	87	72	78	77
MA0101257	ORANGE WWTP	POTW	1.10	0.98	72	62	58	91	91	75
MA0003697	BARNHARDT MANUFACTURING	IND	0.89	0.33	58	78	49	54	96	67
MA0103152	BARRE WWTF	POTW	0.30	0.19	77	81	50	50	49	61
MA0101567	WARREN WWTP	POTW	1.50	0.26	45	42	124	38	55	61
MA0000469	SEAMAN PAPER OF MASSACHUSETTS	IND	1.10	0.83	26	97	53	62	46	57
MA0100005	ATHOL WWTF	POTW	1.75	0.79	76	56	40	39	44	51
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/year)
MA0100862	WINCHENDON WPCF	POTW	1.10	0.50	25	33	29	48	40	35
MA0101290	HATFIELD WWTF	POTW	0.50	0.17	51	37	28	28	27	34
MA0101052	ERVING WWTP #2	POTW	2.70	1.78	35	38	38	33	25	34
MA0100340	TEMPLETON WWTF	POTW	2.80	0.27	19	35	18	21	35	26
MAG580004	SOUTH DEERFIELD WWTP	POTW	0.85	0.37	15	33	18	18	27	22
MA0040207	CHANG FARMS INC	IND	0.65	0.22	22	15	34	20	20	22
MA0110035	MCLAUGHLIN/SUNDERLAND STATE FISH HATCHERY	IND	2.10	2.16	25	22	19	20	25	22
MA0102148	BELCHERTOWN WRF	POTW	1.00	0.36	61	13	11	11	5.6	20
MAG580002	SHELBURNE WWTF	POTW	0.25	0.16	15	13	17	17	21	17
MAG580005	SUNDERLAND WWTF	POTW	0.50	0.17	20	12	13	10	9.3	13
MAG580001	OLD DEERFIELD WWTP	POTW	0.25	0.068	13	14	13	12	12	13
MA0110051	MCLAUGHLIN/BITZER STATE TROUT HATCHERY	IND	1.43	1.70	23	12	12	8.2	8.2	13
MA0032573	NORTHFIELD MT HERMON SCHOOL WWTP	POTW	0.45	0.072	22	7.6	15	10	10	13
MA0100102	HARDWICK WPCF	POTW	0.23	0.12	8.2	5.9	13	4.3	17	10
MA0100200	NORTHFIELD WWTF	POTW	0.28	0.080	3.8	6.8	6.5	10	14	8.1
MA0101516	ERVING WWTP #1	POTW	1.02	0.14	7.2	6.1	3.7	10	7.5	6.9
MA0102776	ERVING WWTP #3	POTW	0.010	0.0049	6.1	2.9	6.9	8.0	7.5	6.3
MA0102431	HARDWICK WWTP	POTW	0.040	0.016	7.4	1.5	11	6.9	2.3	5.9
MAG580003	CHARLEMONT WWTF	POTW	0.050	0.016	7.5	4.2	4.8	4.8	4.8	5.2
MA0101265	HUNTINGTON WWTP	POTW	0.20	0.067	4.6	4.1	5.6	4.3	5.2	4.7
MA0100188	MONROE WWTF	POTW	0.020	0.013	*1.4*	1.4	1.2	2.3	1.7	1.6
MA0000272	PAN AM RAILWAYS YARD	IND	0.015	0.011	0.06	0.13	0.12	0.47	0.18	0.19
MA0001350	LS STARRETT PRECISION TOOLS	IND	0.025	0.014	0.03	0.0	0.08	0.07	0.04	0.05
MA0100161	ROYALSTON WWTP	POTW	0.039	0.01298	*0.9*	0.49	0.43	0.49	0.60	0.59
Total Massachusetts Housatonic Load			**29.4**	**18**	**1,667**	**1,605**	**1,509**	**1,612**	**1,707**	**1,626**
MA0101681	PITTSFIELD WWTF	POTW	17.00	10.55	1,179	1,176	1,145	1,245	1,319	1,213
MA0000671	CRANE WWTP	POTW	3.10	3.07	155	142	108	116	107	126

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

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

Permit #	Name	Type	Design Flow (MGD)	2014-2018 Avg Flow (MGD)	2014 Average Load (lb/day)	2015 Average Load (lb/day)	2016 Average Load (lb/day)	2017 Average Load (lb/day)	2018 Average Load (lb/day)	2014-2018 Avg Load (lb/year)
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*	*553*	465
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.

Appendix D

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

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

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

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

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

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

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

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

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

Attachment A

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

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

Introduction

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

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

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

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

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

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

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

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

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

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

I. Background

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

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

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

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

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

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

There are many underlying reasons for the poor performance of collection systems. Much of the nation's sanitary sewer infrastructure is old, and aging infrastructure has deteriorated with time. Communities also sometimes fail to provide capacity to accommodate increased sewage delivery and treatment demand from increasing populations. Furthermore, institutional arrangements relating to the operation of sewers can pose barriers to coordinated action, because many municipal sanitary sewer collection systems are not entirely owned or operated by a single municipal entity.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

III. Legal Authority

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Without imposing conditions on the satellite communities, standard permit conditions applicable to all NPDES permits by regulation cannot be given full effect. To illustrate, there is no dispute that the operator of the POTW treatment plant and outfall is discharging pollutants within the meaning the CWA and, accordingly, is subject to the NPDES permit program. NPDES permitting regulations require standard conditions that "apply to all NPDES permits," pursuant to 40 C.F.R. § 122.41, including a duty to mitigate and to properly operate and maintain "all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit." *Id.* at § 122.41(d), (e). EPA regulations also require additional conditions applicable to specified categories of NPDES permit, including "Publicly owned treatment works." *See id.* at § 122.42(b). A municipal satellite collection system, as demonstrated above, falls within the regulatory definition of a POTW. In light of EPA's authority to require appropriate operation and maintenance of collection systems necessary to achieve compliance with an NPDES permit, and because the operator of the POTW treatment plant may not own or operate a significant portion of the wider treatment works (*i.e.*, the collection systems that send flow to the POTW treatment plant), it is appropriate, and in some cases necessary, to extend pertinent, mandated standard conditions to all portions of the POTW, which is subject to regulation in its entirety. The alternative of allowing state and local jurisdictional boundaries to place significant portions of the POTW beyond the reach of the NPDES permitting program would not only be inconsistent with the broad statutory and regulatory definition of the term POTW but would impede Region 1 from carrying out the objectives of the CWA. It would also, illogically, preclude the Region from imposing on POTWs standard conditions EPA has by regulation mandated for those entities.

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

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

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

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

EPA Region 1 also took notice of federal listening session materials on the June 2010 proposed SSO rule and associated model permits and fact sheet. The position articulated by EPA in these model documents—specifically the application of standard NPDES conditions to municipal satellite collection systems—generally conform to Region 1's co-permitting approach.

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

Exhibit A

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

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

Exhibit B

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

I. Representative POTWS

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

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

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

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

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

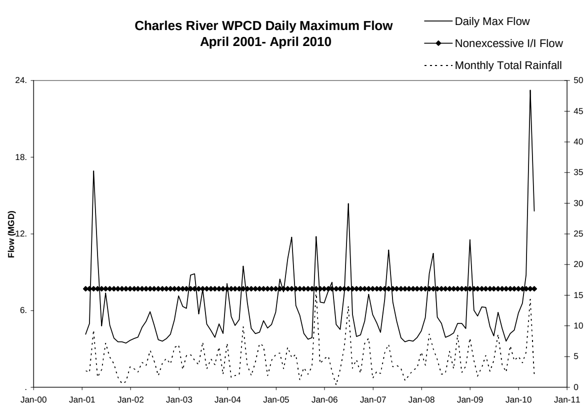
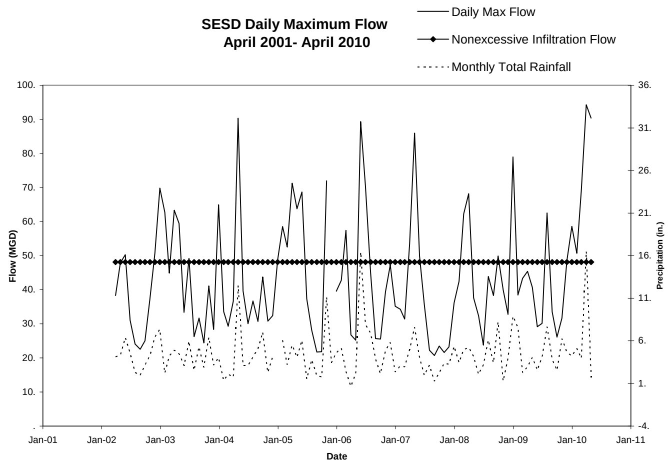


Figure 2. SESD Daily Maximum Flow Compared to Nonexcessive I/I Standard



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

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

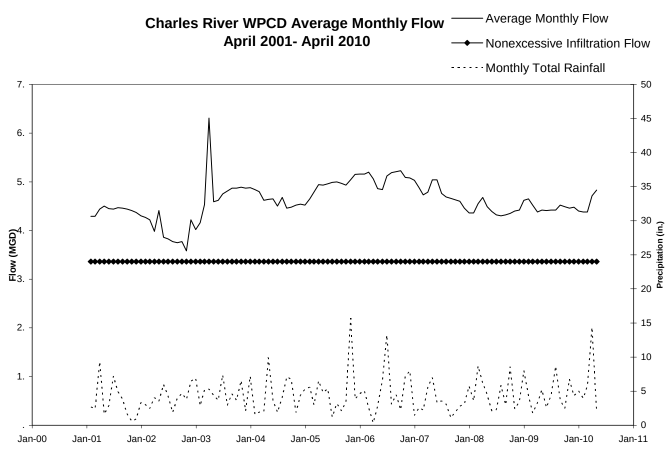
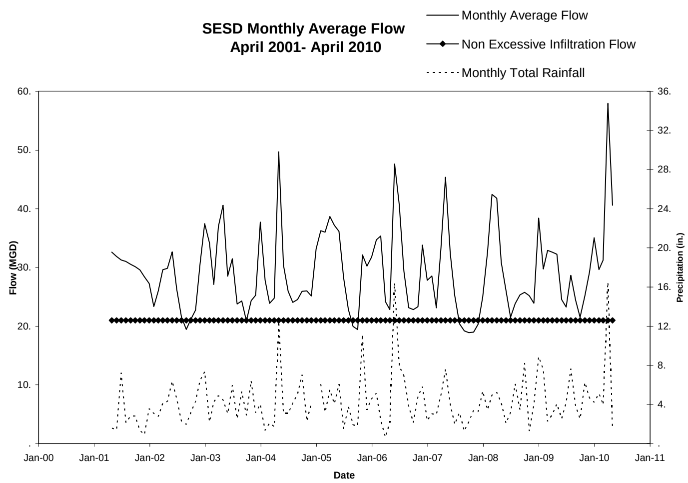


Figure 4. SESD Monthly Average Flow Compared to Nonexcessive Infiltration Standard



II. Flow Trends

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

Figure 5. CRPCD Daily Maximum Flow Trend

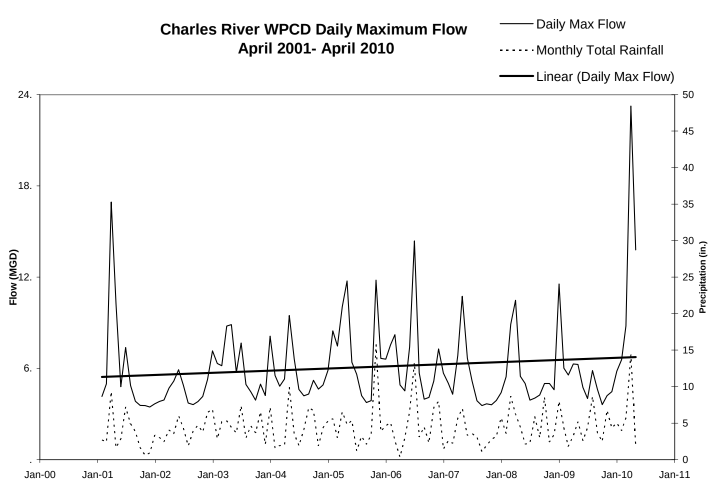
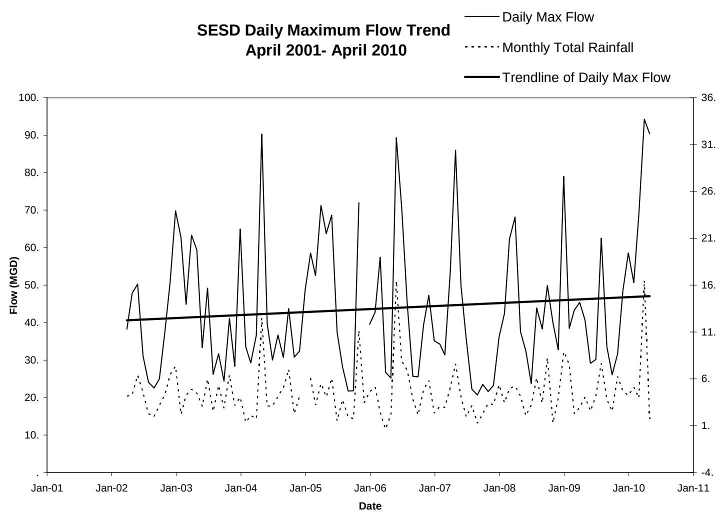


Figure 6. SESD Daily Maximum Flow Trend



III. <u>Violations Associated with Wet Weather Flows</u>

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

Figure 7. CRPCD CBOD and TSS Effluent Limit Violations

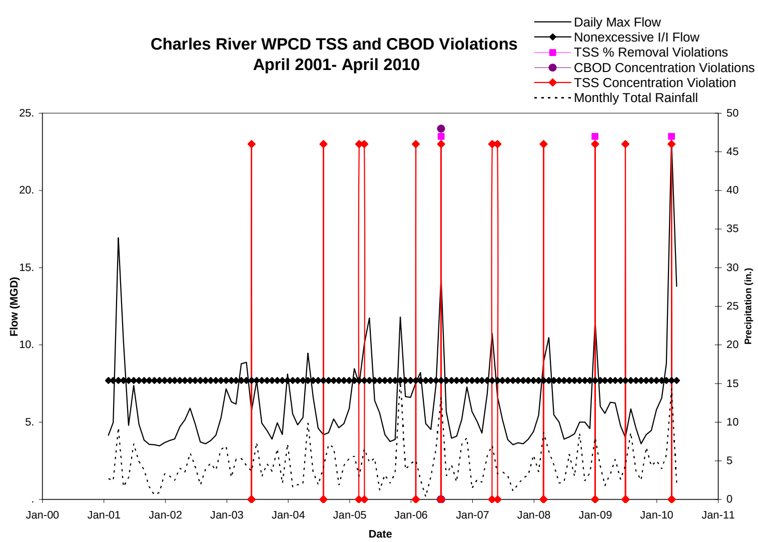
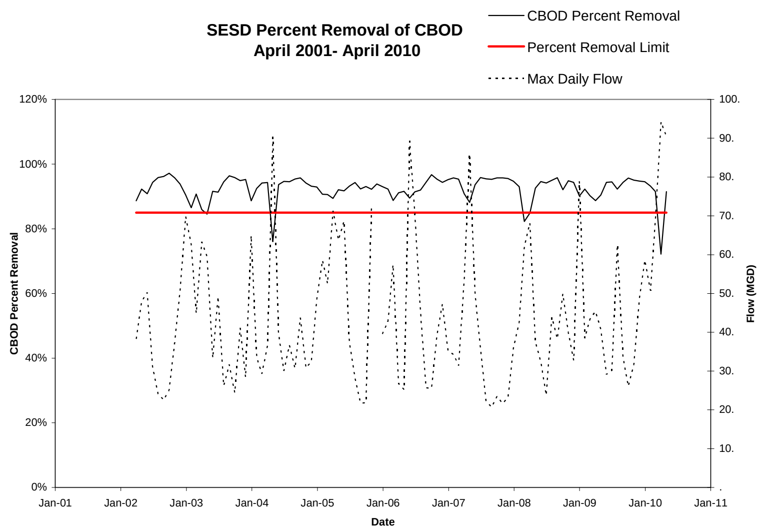


Figure 8 shows SESD's results for removal of CBOD, in percentage, as compared to maximum daily flow. SESD had three permit violations where CBOD removal fell below 85%, all during months with high Maximum Daily Flows.

Figure 8. SESD CBOD Percent Removal



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

Exhibit C

List of municipal satellite collection systems that have had SSOs

Exhibit D

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

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

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

Dear **______**:

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

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

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

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

Sincerely,

Regional Administrator

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES
WATER DIVISION
P.O. BOX 95
CONCORD, NEW HAMPSHIRE 03302-0095

U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION 1
WATER DIVISION
5 POST OFFICE SQUARE
BOSTON, MASSACHUSETTS 02109

JOINT PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO THE WATERS OF THE UNITED STATES UNDER SECTIONS 301 AND 402 OF THE CLEAN WATER ACT (THE "ACT"), AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE ACT, AND ISSUANCE OF A STATE SURFACE WATER PERMIT UNDER NH RSA 485-A:13, I(a).

PUBLIC NOTICE PERIOD: May 20, 2020 – June 18, 2020

PERMIT NUMBER: **NH0100790**

PUBLIC NOTICE NUMBER: NH-011-20

NAME AND MAILING ADDRESS OF APPLICANT:

City of Keene
City Hall
580 Main Street
Keene, New Hampshire 03431

NAMES AND MAILING ADDRESSES OF CO-PERMITTEES

Town of Marlborough
Board of Selectmen
P.O. Box 487
Marlborough, NH 03455

Town of Swanzey
Swanzey Sewer Commission
P.O. Box 10009
Swanzey, NH 03446

NAME AND LOCATION OF FACILITY WHERE DISCHARGE OCCURS:

Keene Wastewater Treatment Plant
420 Airport Road
Swanzey, NH 03446

RECEIVING WATER: **Ashuelot River, Class B**

PREPARATION OF THE DRAFT PERMIT:

The U.S. Environmental Protection Agency (EPA) and the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) have cooperated in the development of a draft permit for the City of Keene, which discharges sanitary and industrial wastewater. The municipalities of Marlborough and Swanzey are co-Permittees for certain parts of the Permit. The effluent limits and permit conditions imposed have been drafted to assure compliance with the Clean Water Act, 33 U.S.C. sections 1251 et seq., Chapter 485-A of the New Hampshire Statutes: Water Pollution and Waste Disposal, and the New Hampshire Surface Water Quality

Regulations, Env-Wq 1700 et seq. EPA has formally requested that the State certify the draft permit pursuant to Section 401 of the Clean Water Act and expects that the draft permit will be certified.

INFORMATION ABOUT THE DRAFT PERMIT:

The draft permit and explanatory fact sheet may be obtained at no cost at http://www.epa.gov/region1/npdes/draft_permits_listing_nh.html or by contacting:

George Papadopoulos
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1579
Papadopoulos.George@epa.gov

The administrative record containing all documents relating to this draft permit including all data submitted by the applicant may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

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 **June 18, 2020**, to the address or email address listed above. Any person, prior to such date, may submit a request in writing to EPA and NHDES for a public hearing to consider this draft permit. 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 whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

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 forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

THOMAS E. O'DONOVAN, P.E., DIRECTOR
WATER DIVISION
NEW HAMPSHIRE DEPARTMENT OF
ENVIRONMENTAL SERVICES

KEN MORAFF, DIRECTOR
WATER DIVISION
U.S. ENVIRONMENTAL PROTECTION
AGENCY - REGION I

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES	U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION 1
WATER DIVISION	WATER DIVISION
P.O. BOX 95	5 POST OFFICE SQUARE
CONCORD, NEW HAMPSHIRE 03302-0095	BOSTON, MASSACHUSETTS 02109

JOINT **EXTENSION OF PUBLIC NOTICE** OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO THE WATERS OF THE UNITED STATES UNDER SECTION 301 AND 402 OF THE CLEAN WATER ACT (THE "ACT"), AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE ACT.

DATE OF ORIGINAL PUBLIC NOTICE PERIOD: **May 20, 2020 – June 18, 2020**

PUBLIC NOTICE EXTENDED TO: **July 20, 2020**

PERMIT NUMBER: **NH0100790**

PUBLIC NOTICE NUMBER: **NH-012-20**

NAME AND MAILING ADDRESS OF APPLICANT:

City of Keene
City Hall
580 Main Street
Keene, New Hampshire 03431

NAMES AND MAILING ADDRESSES OF CO-PERMITTEES

Town of Marlborough	**Town of Swanzey**
Board of Selectmen	**Swanzey Sewer Commission**
P.O. Box 487	**P.O. Box 10009**
Marlborough, NH 03455	**Swanzey, NH 03446**

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Keene Wastewater Treatment Plant
420 Airport Road
Swanzey, NH 03446

RECEIVING WATER: **Ashuelot River, Class B**

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EXTENSION OF PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit is inappropriate, must raise all issues and submit all available comments and all supporting material for their comments in full by **July 20, 2020**, to the EPA contact and address listed above. Any person, prior to such date, may submit a request in writing to EPA and the State Agency for a public hearing to consider this draft permit. 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 whenever 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 at EPA's Boston office.

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AGENCY - REGION I