

**AUTHORIZATION TO DISCHARGE UNDER THE  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

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

**Town of Hillsborough, New Hampshire**

is authorized to discharge from the facility located at

**Hillsborough Wastewater Control Facility  
40 Norton Drive  
Hillsborough, NH 03244**

to receiving water named

**Contoocook River  
Contoocook River Watershed**

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

This permit shall become effective on the first day of the calendar month immediately following 60 days after signature.<sup>1</sup>

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 May 1, 2007.

This permit consists of **Part I** (18 pages); **Attachment A** (Freshwater Acute Toxicity Test Procedure and Protocol, February 2011, 8 pages); and **Part II** (NPDES Part II Standard Conditions, April 2018, 21 pages).

Signed this        day of

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Ken Moraff, Director  
Office of Ecosystem Protection  
Environmental Protection Agency  
Region 1  
Boston, MA

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<sup>1</sup> 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.

## PART I

## A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge treated effluent through Outfall Serial Number 001 to Contoocook 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 <sup>1,2,3</sup>	
	Average Monthly <sup>4</sup>	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type <sup>5</sup>
Wastewater Effluent Flow <sup>6</sup>	0.6 MGD	---	Report MGD	Continuous	Recorder
Wastewater Effluent Flow <sup>6</sup>	Report MGD	---	---	Continuous	Recorder
BOD <sub>5</sub>	30 mg/L 119 lb/day	45 mg/L 178 lb/day	50 mg/L 198 lb/day	1/week	Grab
BOD <sub>5</sub> Removal	≥ 85 %	---	---	---	---
TSS	30 mg/L 119 lb/day	45 mg/L 178 lb/day	50 mg/L 198 lb/day	1/week	Grab
TSS Removal	≥ 85 %	---	---	---	---
pH Range <sup>7</sup>	6.5 - 8.0 S.U.			1/day	Grab
<i>Escherichia coli</i> <sup>8,9</sup>	126 cfu/100 mL	---	406 cfu/100 mL	3/week	Grab
Total Residual Chlorine <sup>8,9</sup>	0.34 mg/L	---	0.59 mg/L	1/day	Grab
Ammonia Nitrogen (June 1 - October 31)	Report mg/L 116.5 lb/day	---	Report mg/L	1/week	Grab
Ammonia Nitrogen (November 1 - May 31)	Report mg/L	---	Report mg/L	1/month	Grab
Total Kjeldahl Nitrogen <sup>10</sup>	Report mg/L Report lb/day	---	Report mg/L	1/quarter	Composite
Total Nitrate <sup>10</sup>	Report mg/L Report lb/day	---	Report mg/L	1/quarter	Composite
Total Nitrite <sup>10</sup>	Report mg/L Report lb/day	---	Report mg/L	1/quarter	Composite
Total Nitrogen <sup>10</sup>	Report mg/L Report lb/day	---	Report mg/L	1/quarter	Composite

Effluent Characteristic	Effluent Limitation			Monitoring Requirements <sup>1,2,3</sup>	
	Average Monthly <sup>4</sup>	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type <sup>5</sup>
Total Phosphorus (April 1 – October 31)	Report mg/L 6.92 lb/day	---	Report mg/L	1/Week	Grab
Total Phosphorus (November 1 – March 31)	Report mg/L	---	Report mg/L	1/Month	Grab
<u>Interim requirement (first 36 months from the effective date)</u> Total Recoverable Aluminum	Report µg/L Report lb/day	---	Report µg/L	2/Month	Grab
Total Recoverable Aluminum <sup>11</sup>	87 µg/L 1 lb/day	---	---	2/Month	Grab
Total Recoverable Copper	Report µg/L 0.083 lb/day	---	Report µg/L	2/Month	Grab
Total Recoverable Lead	Report µg/L 0.0086 lb/day	---	Report µg/L	2/Month	Grab
Available Cyanide <sup>12</sup>	Report µg/L	---	Report µg/L	2/Month	Grab
Total Recoverable Arsenic <sup>12</sup>	Report µg/L	---	Report µg/L	2/Month	Grab
<b>Whole Effluent Toxicity (WET) Testing<sup>13,14</sup></b>					
LC <sub>50</sub>	---	---	≥ 100 %	1/Year	Grab
Hardness	---	---	Report mg/L	1/Year	Grab
Total Organic Carbon	---	---	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

Ambient Characteristic <sup>14,15</sup>	Reporting Requirements			Monitoring Requirements <sup>1,2,3</sup>	
	Average Monthly <sup>4</sup>	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type <sup>5</sup>
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
pH <sup>16</sup>	---	---	Report S.U.	1/Year	Grab
Temperature <sup>16</sup>	---	---	Report °C	1/Year	Grab

Influent Characteristic	Reporting Requirements			Monitoring Requirements <sup>1,2,3</sup>	
	Average Monthly <sup>4</sup>	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type <sup>5</sup>
BOD <sub>5</sub>	Report mg/L	---	---	2/month	Composite
TSS	Report mg/L	---	---	2/month	Composite

## Footnotes:

1. Effluent samples shall yield 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 submit 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 minimum level of detection for a parameter is 50 µg/L).
4. In calculating and reporting the average monthly concentration when the pollutant is not detected, assign zero to the non-detected sample result if the pollutant was not detected for all monitoring periods in the prior twelve months. If the pollutant was detected in at least one monitoring period in the prior twelve months, then assign each non-detected sample result a value that is equal to one half of the minimum level of detection for the purposes of calculating averages.
5. Each composite sample will consist 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 proportionally to flow.
6. 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.

7. 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.2. below for a provision to modify the pH range.
8. The Permittee shall minimize the use of chlorine while maintaining adequate bacterial control. Monitoring for total residual chlorine (TRC) is only required for discharges which have been previously chlorinated or which contain residual chlorine. For the purposes of this permit, TRC analysis must be completed using a test method in 40 C.F.R. § 136 that achieves a minimum level no greater than 20 µg/L.

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

9. 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.
10. Ammonia nitrogen, total Kjeldahl nitrogen, total nitrate and nitrite 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 (total nitrogen = total Kjeldahl nitrogen + total nitrate/nitrite nitrogen). The total nitrogen loading values reported each quarter shall be calculated as follows: Total Nitrogen (lbs/day) = [(average monthly total nitrogen concentration (mg/L) \* total monthly influent flow (Millions of Gallons (MG)) / # of days in the month] \* 8.34.
11. Please see section G.1 for special conditions related to Aluminum.
12. Analysis for Cyanide and Arsenic must be completed using test methods in 40 C.F.R. § 136 that achieves a minimum level no greater than 1 µg/L.
13. The Permittee shall conduct acute toxicity tests (LC<sub>50</sub>) in accordance with test procedures and protocols specified in **Attachment A** of this permit. LC<sub>50</sub> is

- 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 once per year during the same week of the third quarter ending September 30<sup>th</sup>. The complete report for each toxicity test shall be submitted as an attachment to the monthly DMR submittal immediately following the completion of the test.
14. For Part I.A.1., Whole Effluent Toxicity Testing, the Permittee shall conduct the analyses specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS for the effluent sample. If toxicity test(s) using the receiving water as diluent show the receiving water to be toxic or unreliable, the Permittee shall follow procedures outlined in **Attachment A**, Section IV., DILUTION WATER. Minimum levels and test methods are specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS.
  15. For Part I.A.1., Ambient Characteristic, the Permittee shall conduct the analyses specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS for the receiving water sample collected as part of the WET testing requirements. Such samples shall be taken from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location, as specified in **Attachment A**. Minimum levels and test methods are specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS.
  16. A pH and temperature measurement shall be taken of each receiving water sample at the time of collection and the results reported on the appropriate DMR. These pH and temperature measurements are independent from any pH and temperature measurements required by the WET testing protocols.

**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 State 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**

1. This permit authorizes discharges only from the outfall listed in Part I.A.1, in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit 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. The Permittee is required to complete the following activities for the collection system which it owns:

1. Maintenance Staff

The Permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit. Provisions to meet this requirement shall be described in the Collection System O&M Plan required pursuant to Section C.5. below.

2. Preventive Maintenance Program

The Permittee shall maintain an ongoing preventive maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges. Plans and programs to meet this requirement shall be described in the Collection System O&M Plan required pursuant to Section C.5. below.

3. Infiltration/Inflow

The Permittee shall control infiltration and inflow (I/I) into the sewer system as necessary to prevent high flow related unauthorized discharges from their collection systems and high flow related violations of the wastewater treatment plant's effluent limitations. Plans and programs to control I/I shall be described in the Collection System O&M Plan required pursuant to Section C.5. below.

4. Collection System Mapping

In accordance with the requirements in the 2007 Permit, the Permittee prepared a map of the sewer collection system it owns. 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

In accordance with the requirements of the 2007 Permit, the Permittee prepared and submitted a Collection System Operation and Maintenance Plan. The Plan shall be kept up-to-date and available for review by federal, state and local agencies. The Plan shall include the information listed below.

- (1) A preventive maintenance and monitoring program for the collection system;
- (2) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;
- (3) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;
- (4) 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;

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

The Permittee shall 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 31. The summary report shall, at a minimum, include:

- a. A description of the staffing levels maintained during the year;
- b. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year;
- c. Expenditures for any collection system maintenance activities and corrective actions taken during the previous year;
- d. A map with areas identified for investigation/action in the coming year;
- e. A summary of unauthorized discharges during the past year and their causes and a report of any corrective actions taken as a result of the unauthorized discharges reported pursuant to the Unauthorized Discharges section of this permit; and
- f. If the average annual flow in the previous calendar year exceeded 80 percent of the facility 0.6 MGD design flow (0.48 MGD), or there have been capacity related overflows, the report shall include:
  - (1) Plans for further potential flow increases describing how the Permittee will maintain compliance with the flow limit and all other effluent limitations and conditions; and
  - (2) A calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year.

#### D. ALTERNATE POWER SOURCE

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

**E. INDUSTRIAL USERS**

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

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

17. In the event that the Permittee receives reports (baseline monitoring reports, 90-day compliance reports, periodic reports on continued compliance, etc.) from industrial users subject to Categorical Pretreatment Standards under 40 C.F.R. § 403.6 and 40 C.F.R. Chapter I, Subchapter N (§§ 405-415, 417-430, 432-447, 449-451, 454-455, 457-461, 463-469, and 471 as amended), the Permittee shall forward all copies of these reports within ninety (90) days of their receipt to EPA and the State.

**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.<sup>2</sup>

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.

<sup>2</sup> 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>

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.

## G. SPECIAL CONDITIONS

### 1. Aluminum

The 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. For the period starting on the effective date of this permit and ending three (3) years after the effective date, the permittee shall report only the monthly average aluminum concentration on the monthly DMR. After this initial three (3) year period, the permittee shall comply with the monthly average total aluminum limits of 87 µg/L (“final aluminum effluent limit”). The permittee shall submit an annual report due by January 15<sup>th</sup> of each year of the permit that will detail its progress towards meeting the final aluminum effluent limit.

At a minimum, the permittee shall include the following:

- 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 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 limits. 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.<sup>3</sup>

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<sup>3</sup> The final effluent limit of 87 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 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).

2. 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 the State, 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.

## 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 accessed from the internet at <https://netdmr.zendesk.com/hc/en-us>.

### 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 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") found on the internet at <https://www.epa.gov/compliance/npdes-ereporting>.

### 4. Submittal of Requests and Reports to EPA/OEP

- a. The following requests, reports, and information described in this permit shall be submitted to the EPA/OEP NPDES Applications Coordinator in the EPA Office Ecosystem Protection (OEP):
  - (1) Transfer of permit notice;
  - (2) Request for changes in sampling location;
  - (3) Request for reduction in testing frequency;

- (4) Request for change in WET testing requirement; and
  - (5) Report on unacceptable dilution water / request for alternative dilution water for WET testing.
  - (6) Report of new industrial user commencing discharge
  - (7) Report received from existing industrial user
- b. These reports, information, and requests shall be submitted to EPA/OEP electronically at [R1NPDES.Notices.OEP@epa.gov](mailto:R1NPDES.Notices.OEP@epa.gov) or by hard copy mail to the following address:

**U.S. Environmental Protection Agency  
Office of Ecosystem Protection  
EPA/OEP NPDES Applications Coordinator  
5 Post Office Square - Suite 100 (OEP06-03)  
Boston, MA 02109-3912**

5. Submittal of Reports 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) Written notifications required under Part II
- (2) Notice of unauthorized discharges, including Sanitary Sewer Overflow (SSO) reporting

- b. This information shall be submitted to EPA/OES at the following address:

**U.S. Environmental Protection Agency  
Office of Environmental Stewardship (OES)  
Water Technical Unit  
5 Post Office Square, Suite 100 (OES04-SMR)  
Boston, MA 02109-3912**

6. State Reporting

- a. 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.4 through I.H.5 shall also be submitted to the New Hampshire Department of Environmental Services (NHDES) at 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**



## 7. Verbal Reports and Verbal Notifications

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

**617-918-1510**
- c. Verbal reports and verbal notifications shall also be made to the Permittee's assigned NPDES inspector at NHDES –WD.

**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-A:13,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 to 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 based on actual average flow 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.
7. For each new or increased discharge of industrial waste to the POTW, the Permittee shall submit, in accordance with Env-Wq 305.10(b) 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. The sewer use ordinance shall include local limits pursuant to Env-Wq 305.04(a).
  - 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.

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

and

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

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

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

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

#### V. TEST CONDITIONS

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

**EPA NEW ENGLAND EFFLUENT TOXICITY TEST CONDITIONS FOR THE DAPHNID, CERIODAPHNIA DUBIA 48 HOUR ACUTE TESTS<sup>1</sup>**

1.	Test type	Static, non-renewal
2.	Temperature (°C)	20 ± 1°C or 25 ± 1°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 <u>Selenastrum</u> to newly released organisms while holding prior to initiating test
12.	Aeration	None
13.	Dilution water <sup>2</sup>	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q <sup>R</sup> or equivalent deionized water and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	≥ 0.5, must bracket the permitted RWC
15.	Number of dilutions	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution

series.

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

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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<sup>1</sup>**

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1. Test Type	Static, non-renewal
2. Temperature (°C)	20 ± 1 ° C or 25 ± 1°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 <sup>2</sup>	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q <sup>R</sup> 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	≥ 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   |

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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.

<u>Parameter</u>	Effluent	Receiving Water	ML (mg/l)
Hardness <sup>1</sup>	x	x	0.5
Total Residual Chlorine (TRC) <sup>2, 3</sup>	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:

- 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)
- 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
- 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-Kärber
- Trimmed Spearman-Kärber
- 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.

NPDES PART II STANDARD CONDITIONS  
(April 26, 2018)<sup>1</sup>

TABLE OF CONTENTS

	Page
A. GENERAL CONDITIONS	
1. <u>Duty to Comply</u>	2
2. <u>Permit Actions</u>	3
3. <u>Duty to Provide Information</u>	4
4. <u>Oil and Hazardous Substance Liability</u>	4
5. <u>Property Rights</u>	4
6. <u>Confidentiality of Information</u>	4
7. <u>Duty to Reapply</u>	4
8. <u>State Authorities</u>	4
9. <u>Other laws</u>	5
B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS	
1. <u>Proper Operation and Maintenance</u>	5
2. <u>Need to Halt or Reduce Not a Defense</u>	5
3. <u>Duty to Mitigate</u>	5
4. <u>Bypass</u>	5
5. <u>Upset</u>	6
C. MONITORING AND RECORDS	
1. <u>Monitoring and Records</u>	7
2. <u>Inspection and Entry</u>	8
D. REPORTING REQUIREMENTS	
1. <u>Reporting Requirements</u>	8
a. Planned changes	8
b. Anticipated noncompliance	8
c. Transfers	9
d. Monitoring reports	9
e. Twenty-four hour reporting	9
f. Compliance schedules	10
g. Other noncompliance	10
h. Other information	10
i. Identification of the initial recipient for NPDES electronic reporting data	11
2. <u>Signatory Requirement</u>	11
3. <u>Availability of Reports</u>	11
E. DEFINITIONS AND ABBREVIATIONS	
1. <u>General Definitions</u>	11
2. <u>Commonly Used Abbreviations</u>	20

<sup>1</sup>Updated July 17, 2018 to fix typographical errors.

NPDES PART II STANDARD CONDITIONS  
(April 26, 2018)

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

## NPDES PART II STANDARD CONDITIONS

(April 26, 2018)

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

NPDES PART II STANDARD CONDITIONS  
(April 26, 2018)

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

NPDES PART II STANDARD CONDITIONS  
(April 26, 2018)

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

## NPDES PART II STANDARD CONDITIONS

(April 26, 2018)

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

### d. *Prohibition of bypass.*

- (1) Bypass is prohibited, and the Director may take enforcement action against a Permittee for bypass, unless:
  - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
  - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
  - (c) The Permittee submitted notices as required under paragraph 4.c of this Section.
- (2) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 4.d of this Section.

### 5. Upset

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



NPDES PART II STANDARD CONDITIONS  
(April 26, 2018)

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

NPDES PART II STANDARD CONDITIONS  
(April 26, 2018)

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.

## NPDES PART II STANDARD CONDITIONS

(April 26, 2018)

- 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

## NPDES PART II STANDARD CONDITIONS

(April 26, 2018)

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

## NPDES PART II STANDARD CONDITIONS

(April 26, 2018)

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

NPDES PART II STANDARD CONDITIONS  
(April 26, 2018)

“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 96-483 and 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

## NPDES PART II STANDARD CONDITIONS

(April 26, 2018)

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

NPDES PART II STANDARD CONDITIONS  
(April 26, 2018)

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<sub>50</sub>* means the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC<sub>50</sub> = 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



## NPDES PART II STANDARD CONDITIONS

(April 26, 2018)

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).

## NPDES PART II STANDARD CONDITIONS

(April 26, 2018)

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

## NPDES PART II STANDARD CONDITIONS

(April 26, 2018)

(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

## NPDES PART II STANDARD CONDITIONS

(April 26, 2018)

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

## NPDES PART II STANDARD CONDITIONS

(April 26, 2018)

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.

NPDES PART II STANDARD CONDITIONS  
(April 26, 2018)

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 <sub>2</sub>	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 <sup>3</sup> /day	Cubic meters per day
DO	Dissolved oxygen

NPDES PART II STANDARD CONDITIONS  
(April 26, 2018)

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 <sub>3</sub> -N	Ammonia nitrogen as nitrogen
NO <sub>3</sub> -N	Nitrate as nitrogen
NO <sub>2</sub> -N	Nitrite as nitrogen
NO <sub>3</sub> -NO <sub>2</sub>	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
Surfactant	Surface-active agent
Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
µg/L	Microgram(s) per liter
WET	“Whole effluent toxicity”
ZID	Zone of Initial Dilution

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

**FACT SHEET**

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

**NPDES PERMIT NUMBER:** NH0100111

**PUBLIC NOTICE START AND END DATES:** March 29, 2019 – April 27, 2019

**NAME AND MAILING ADDRESS OF APPLICANT:**

Town of Hillsborough, New Hampshire  
Hillsborough Water and Sewer Commission  
4 Church Street  
P.O. Box 2216  
Hillsborough, NH 03244

**NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:**

Hillsborough Wastewater Control Facility  
40 Norton Drive  
Hillsborough, NH 03244

**RECEIVING WATER AND CLASSIFICATION:**

Contoocook River (NHRIV700030504-10)  
Contoocook Watershed - USGS Code: 01070003  
Class B



**TABLE OF CONTENTS**

1 Proposed Action..... 4

2 Statutory and Regulatory Authority..... 4

2.1 Technology-Based Requirements ..... 4

2.2 Water Quality Based Requirements..... 5

2.2.1 Water Quality Standards ..... 5

2.2.2 Antidegradation..... 5

2.2.3 Assessment and Listing of Waters and Total Maximum Daily Loads. .... 6

2.2.4 Reasonable Potential..... 7

2.2.5 State Certification ..... 7

2.3 Effluent Flow Requirements ..... 8

2.4 Monitoring and Reporting Requirements ..... 9

2.4.1 Monitoring Requirements ..... 9

2.4.2 Reporting Requirements ..... 11

2.5 Anti-backsliding..... 11

3 Description of Facility and Discharge ..... 11

3.1 Location and Type of Facility..... 11

3.1.1 Treatment Process Description ..... 12

3.1.2 Collection System Description ..... 12

4 Description of Receiving Water and Dilution ..... 13

4.1 Available Dilution..... 14

5 Proposed Effluent Limitations and Conditions..... 16

5.1 Effluent Limitations and Monitoring Requirements..... 16

5.1.1 Wastewater Effluent Flow ..... 16

5.1.2 Biochemical Oxygen Demand (BOD<sub>5</sub>)..... 16

5.1.3 Total Suspended Solids (TSS) ..... 18

5.1.4 Eighty-Five Percent (85%) BOD<sub>5</sub> and TSS Removal Requirement..... 19

5.1.5 pH..... 19

5.1.6 Bacteria ..... 19

5.1.7 Total Residual Chlorine (TRC)..... 20

5.1.8 Ammonia..... 20

5.1.9 Nutrients..... 22

5.1.10 Metals..... 26

5.1.11 Whole Effluent Toxicity ..... 35

5.2 Industrial Pretreatment Program ..... 36

5.3 Sludge Conditions..... 37

5.4 Infiltration/Inflow (I/I)..... 37

5.5 Operation and Maintenance of the Sewer System ..... 38

5.6 Standard Conditions..... 38

6 Federal Permitting Requirements ..... 38

6.1 Endangered Species Act ..... 38

6.2 Essential Fish Habitat ..... 39

7 Public Comments, Hearing Requests and Permit Appeals ..... 40

8 EPA Contact..... 41

**TABLE OF TABLES**

Table 1: USGS Gaging Stations and 7Q10 flows used in developing dilution factor..... 15

Table 2: Applicable Ammonia Criteria..... 21

Table 3: Contoocook River and Hillsborough WWCF Hardness..... 27

Table 4: Summary of Acute and Chronic Fresh Water Criteria for Metals at a hardness of 20 mg/l for NH Adopted Criteria (from NH WQS, Table 1703.1) ..... 28

Table 5: Reasonable Potential Table for NH Adopted WQS ..... 30

Table 6: NHDES Antidegradation Study Results (See Appendix C for further detail)..... 31

Table 7: Permit Limits from Antidegradation Analysis ..... 32

**TABLE OF FIGURES**

Figure 1: Locus Map..... 42

Figure 2: Flow diagram of the Hillsborough WWCF..... 43

Figure 3: Evaluation of the need for a concentration-based copper limit under various effluent scenarios..... 34

**APPENDICES**

Appendix A – DMR and WET Effluent Data

Appendix B – WET Ambient Data

Appendix C – Letter from NHDES summarizing 2008 Antidegradation Study

Appendix D– Statistical Approach to Characterizing the Effluent

Appendix E - Summary of Estuarine Data from 2017 CDM Smith/Army Corp Report and 2017 Field Study

## 1 Proposed Action

The above named applicant (the “Permittee”) has applied to the U.S. Environmental Protection Agency (EPA) for reissuance of a National Pollutant Discharge Elimination System (NPDES) Permit to discharge from the Treatment Plant (the “Facility”) into the designated receiving water.

The permit currently in effect was issued on May 1, 2007 with an effective date of July 1, 2007 and expired on June 30, 2012 (the “2007 Permit”). The 2007 Permit was modified by letter on January 8, 2010 to relieve the Permittee from the requirement in Part I.C.1.k of the Permit for the inclusion of pipe rim and invert elevations on the map of the wastewater collection system. The modification made no change in the effluent limits. The Permittee filed an application for permit reissuance with EPA, dated December 28, 2011, 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 May 3, 2012, the Facility’s 2007 Permit has been administratively continued pursuant to 40 C.F.R. § 122.6 and § 122.21(d).

## 2 Statutory and Regulatory Authority

Congress enacted the Clean Water Act (CWA), “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” *See* CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into the waters of the United States from any point source, except as authorized by specific permitting sections of the CWA, one of which is § 402. *See* CWA §§ 303(a), 402(a). Section 402(a) established one of the CWA’s principal permitting programs, the NPDES Permit Program. Under this section, EPA may “issue a permit for the discharge of any pollutant or combination of pollutants” in accordance with certain conditions. *See* CWA § 402(a). NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. *See* CWA § 402(a)(1) and (2). The regulations governing EPA’s NPDES Permit Program are generally found in 40 C.F.R. §§ 122, 124, 125, and 136.

Section 301 of the CWA provides for two types of effluent limitations to be included in NPDES permits: “technology-based” effluent limitations (TBELs) and “water quality-based” effluent limitations (WQBELs). *See* CWA §§ 301, 304(b); 40 C.F.R. §§ 122, 125, and 131.

### 2.1 Technology-Based Requirements

Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant reducing technology available and economically achievable for the type of facility being permitted. *See* CWA § 301(b). As a class, publicly owned treatment works (POTWs) must meet performance-based requirements based on available wastewater treatment technology. *See* CWA § 301(b)(1)(B). The performance level for POTWs is referred to as “secondary treatment.” Secondary treatment is comprised of technology-based requirements expressed in terms of BOD<sub>5</sub>, 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) antidegradation requirements to ensure that once a use is attained it will not be degraded and to protect high quality and National resource waters. *See* CWA § 303(c)(2)(A) and 40 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.

Receiving water requirements are established according to numerical and narrative standards in WQSs adopted under State law for each water body classification. When using chemical-specific numeric criteria to develop permit limits, acute and chronic aquatic life criteria and human health criteria are used and expressed in terms of maximum allowable in-stream pollutant concentrations. In general, aquatic-life acute criteria are considered applicable to daily time periods (maximum daily limit) and aquatic-life chronic criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific human health criteria are typically based on lifetime chronic exposure and are therefore typically applicable to monthly average limits.

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

### **2.2.2 Antidegradation**

Federal regulations found at 40 C.F.R. § 131.12 require states to develop and adopt a statewide antidegradation policy that maintains and protects existing in-stream water uses and the level of water quality necessary to protect these existing uses. In addition, the antidegradation policy

ensures 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 Antidegradation Policy, found at Env-Wq 1708, applies to any new or increased activity that would lower water quality or affect existing or designated uses, including increased loadings to a water body from an existing activity. The antidegradation regulations focus on protecting high quality waters and maintaining water quality necessary to protect existing uses. Discharges that cause “significant degradation” are defined in NH WQS (Env-Wq 1708.09(a)) as those that use 20% or more of the remaining assimilative capacity for a water quality parameter in terms of either concentration or mass of pollutants or flow rate for water quantity. 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 protect the existing uses of the receiving water. An increased discharge is authorized by this permit; therefore, NHDES was required to conduct an antidegradation review (*See* Appendix C) for this permit reissuance for an existing discharge as described in Section 5.

### **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.

A TMDL is a planning tool and potential starting point for restoration activities with the ultimate goal of attaining water quality standards. A TMDL is essentially a pollution budget designed to restore the health of an impaired water body. A TMDL typically identifies the source(s) of the pollutant from direct and indirect discharges, determines the maximum load of the pollutant that can be discharged to a specific water body while maintaining WQSs for designated uses, and allocates that load to the various pollutant sources, including point source discharges, subject to NPDES Permits. *See* 40 C.F.R. § 130.7.

For impaired waters where a TMDL has been developed for a particular pollutant and the TMDL

includes a waste load allocation for a NPDES permitted discharge, the effluent limit in the permit may not exceed the waste load allocation. *See* 40 C.F.R. § 122.44(d)(1)(vii)(B).

#### 2.2.4 Reasonable Potential

Pursuant to 40 C.F.R. § 122.44(d)(1), NPDES permits must contain any requirements in addition to TBELs necessary to achieve water quality standards established under § 303 of the CWA. In addition, limitations “must control any pollutant or pollutant parameter (conventional, non-conventional, or toxic) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any water quality standard, including State narrative criteria for water quality”. *See* 40 C.F.R.

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

In determining reasonable potential, EPA considers: 1) existing controls on point and non-point sources of pollution; 2) the variability of the pollutant or pollutant parameter in the effluent; 3) the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity); and 4) where appropriate, the dilution of the effluent in the receiving water. EPA typically considers the statistical approach outlined in *Technical Support Document for Water Quality-based Toxics Control (TSD)*<sup>1</sup> to determine if the discharge causes, or has the reasonable potential to cause, or contribute to an excursion above any WQS. *See* 40 C.F.R. § 122.44(d). EPA’s quantitative approach statistically projects effluent concentrations based on available effluent data, which are then compared to the applicable WQC.

#### 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

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<sup>1</sup> March 1991, EPA/505/2-90-001

attributable to State certification shall be made through the applicable procedures of the State and may not be made through the applicable procedures of 40 C.F.R. § 124.

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

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

### 2.3 Effluent Flow Requirements

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

EPA may use design flow of wastewater effluent both to determine the necessity for effluent limitations in the permit that comply with the Act, and to calculate the limits themselves. EPA practice is to use design flow as a reasonable and important worst-case condition in EPA's reasonable potential and WQBEL calculations to ensure compliance with WQSs under § 301(b)(1)(C). Should the wastewater effluent flow exceed the flow assumed in these calculations, the instream dilution would decrease and the calculated effluent limits may not be protective of WQSs. Further, pollutants that do not have the reasonable potential to exceed WQSs at the lower wastewater discharge flow may have reasonable potential at a higher flow due to the decreased dilution. To ensure that the assumptions underlying the Region's reasonable potential analyses and derivation of permit effluent limitations remain sound for the duration of the permit, the Region may ensure its "worst-case" wastewater effluent flow assumption through imposition of permit conditions for wastewater effluent flow. Thus, the wastewater effluent flow limit is a component of WQBELs because the WQBELs are premised on a maximum level of flow. In addition, the wastewater effluent flow limit is necessary to ensure that other pollutants remain at levels that do not have a reasonable potential to exceed WQSs.

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

Similarly, EPA's reasonable potential regulations require EPA to consider "where appropriate,

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

The limitation on wastewater effluent flow is within EPA’s authority to condition a permit in order to carry out the objectives of the Act. *See* CWA §§ 402(a)(2) and 301(b)(1)(C); 40 C.F.R. §§ 122.4(a) and (d); 122.43 and 122.44(d). A condition on the discharge designed to protect EPA’s WQBEL and reasonable potential calculations is encompassed by the references to “condition” and “limitations” in 402 and 301 and implementing regulations, as they are designed to assure compliance with applicable water quality regulations, including 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. Thus, the permit’s wastewater effluent flow limitation is necessary to ensure proper facility operation, which in turn is a requirement applicable to all NPDES permits. *See* 40 C.F.R. § 122.41.

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

Furthermore, the extraneous flow due to significant I/I greatly increases the potential for sanitary sewer overflows (SSOs) in separate systems. Consequently, the effluent flow limit is a permit condition that relates to the permittee’s duty to mitigate (*i.e.*, minimize or prevent any discharge in violation of the permit that has a reasonable likelihood of adversely affecting human health or the environment) and to properly operate and maintain the treatment works. *See* 40 C.F.R. §§ 122.41(d) and (e).

## **2.4 Monitoring and Reporting Requirements**

### **2.4.1 Monitoring Requirements**

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



§ 308(a), 33 USC § 1318(a), and applicable state regulations to include requirements such as monitoring and reporting in NPDES permits.

The monitoring requirements included in this permit have been established to yield data representative of the discharges under the authority of §§ 308(a) and 402(a)(2) of the CWA, and consistent with 40 C.F.R. §§ 122.41(j), 122.43(a), 122.44(i) and 122.48. The monitoring requirements included in this permit specify routine sampling and analysis, which will provide ongoing, representative information on the levels of regulated constituents in the wastewater discharge streams. The monitoring program is needed to assess effluent characteristics, evaluate permit compliance, and determine if additional permit conditions are necessary to ensure compliance with technology-based and water quality-based requirements, including WQSs. EPA and/or the state may use the results of the chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to § 304(a)(1) of the CWA, state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including, but not limited to, those pollutants listed in Appendix D of 40 C.F.R. § 122. Therefore, the monitoring requirements in this permit are included for specific regulatory use in carrying out the CWA.

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

- The method minimum level<sup>3</sup> (ML) is at or below the level of the applicable water quality criterion or permit limitation for the measured pollutant or pollutant parameter; or
- In the case of permit applications, the ML is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or parameter in the discharge; or

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<sup>2</sup> Federal Register, Vol. 79, No. 160, Tuesday, August 19, 2014; FR Doc. 2014–19557.

<sup>3</sup> The term “minimum level” refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL). Minimum levels may be obtained in several ways: They may be published in a method; they may be sample concentrations equivalent to the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a lab, by a factor. EPA is considering the following terms related to analytical method sensitivity to be synonymous: “quantitation limit,” “reporting limit,” “level of quantitation,” and “minimum level.” See Federal Register, Vol. 79, No. 160, Tuesday, August 19, 2014; FR Doc. 2014–19557.

- The method has the lowest ML of the EPA-approved analytical methods.

## 2.4.2 Reporting Requirements

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

NetDMR is a national web-based tool for regulated CWA permittees to submit DMRs electronically via a secure internet application to EPA through the Environmental Information Exchange Network. NetDMR has allowed participants to discontinue mailing in hard copy forms to EPA under 40 C.F.R. §§ 122.41 and 403.12. NetDMR is accessed from the following website: <https://netdmr.zendesk.com/hc/en-us>. Further information about NetDMR can be found on the EPA Region 1 NetDMR website.<sup>4</sup>

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

## 2.5 Anti-backsliding

A permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in a previous permit unless in compliance with the anti-backsliding requirements of the CWA. See §§ 402(o) and 303(d)(4) of the CWA and 40 C.F.R. § 122.44(l)(1 and 2). Anti-backsliding provisions apply to effluent limits based on technology, water quality, BPJ and 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 one of the exceptions listed in 40 C.F.R. § 122.44(l)(2)(i) and/or in accordance with § 303(d)(4). Discussion of any applicable exceptions are discussed in sections that follow. Therefore, the Draft Permit complies with the anti-backsliding requirements of the CWA.

## 3 Description of Facility and Discharge

### 3.1 Location and Type of Facility

The location of the treatment plant and the outfall 001 to the Contoocook River are shown in Figure 1. The latitude and longitude of the outfall is N 43° 7' 7", W 71° 52' 54".

The Hillsborough Wastewater Control Facility (WWCF or Facility) is a secondary wastewater

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<sup>4</sup> <https://netdmr.zendesk.com/hc/en-us/articles/209616266-EPA-Region-1-NetDMR-Information>.

treatment facility that is engaged in the collection and treatment of municipal wastewater. Currently, the Facility serves 2,375 residents in the Town of Hillsborough, NH.

The Facility is currently authorized to discharge based on a design flow of 0.475 million gallons per day (MGD) and has requested an authorized design flow increase to 0.6 MGD following the completion of an upgrade in January 2014. The annual average flow reported in the 2011 application was 0.46 MGD and the monthly average for the last 4 years, based on Discharge Monitoring Report (DMR) data, has been 0.31 MGD, as shown in Appendix A. The system is a separate system with no combined sewers.

The Permittee reported an average monthly flow of 0.46 MGD, a maximum daily flow of 1.14 MGD and an average daily I/I flow of 0.32 MGD in its 2011 application.

Wastewater is comprised mostly of domestic sewage but receives wastewater from one (1) significant industrial user (SIU), Osram/Sylvania, which is authorized to discharge a continuous flow of up to approximately 10,500 gallons per day (gpd) of process wastewater and a continuous flow of 15,000 gpd of non-process wastewater. The same industrial user has also applied to the Hillsborough Water and Sewer Commission for approval of the discharge of remediation wastewater from a groundwater treatment system with a continuous flow of up to 15,000 gpd.

A quantitative description of the discharge in terms of effluent parameters, based on monitoring data submitted by the Permittee from February 2014 through December 2017 is provided in Appendix A of this Fact Sheet. This evaluation period begins with the first full month after the Permittee received a certification of final completion (January 9, 2014) for the facility upgrade.

### **3.1.1 Treatment Process Description**

The Hillsborough WWCF is a secondary wastewater treatment facility. The influent is carried to the facility by a screw pump to a bar rack and then enters the aerated grit chamber. The wastewater then enters the first of three lagoons. Each lagoon is furnished with air diffuser tubing to inject air for aerating and mixing wastewater. Prior to entering Lagoon No. 3, systems are in place to add ferric chloride and magnesium hydroxide. After leaving the last lagoon, the effluent is disinfected with sodium hypochlorite. The effluent enters the Contoocook River via Outfall 001. A process flow schematic of the treatment facility is shown in Figure 2.

Sludge is typically removed from the lagoons when the accumulation exceeds 12 to 18 inches in depth. The most recent sludge removal, 45 dry metric tons, was conducted in 2010-2011 by Senesac, Inc. and then disposed of at a landfill in Coventry, VT operated by New England Waste Services of VT. Typical of most lagoon WWTFs, sludge is not removed annually so there is no available information about annual average facility sludge generation.

### **3.1.2 Collection System Description**

The Hillsborough WWCF is served by a separate sewer system. A separate sanitary sewer conveys domestic, industrial and commercial sewage, but not stormwater. It is part of a “two pipe system” consisting of separate sanitary sewers and storm sewers. The two systems have no interconnections; the sanitary sewer leads to the wastewater treatment plant and the storm sewers

discharge to a local water body.

#### 4 Description of Receiving Water and Dilution

The Contoocook River flows for 71 miles from Poole Pond in Rindge, New Hampshire, north to Penacook, where it empties into the Merrimack River. Encompassing a drainage basin of 766 square miles. The segment of the Contoocook River that receives the Hillsborough WWCF discharge, NHRIV700030504-10, begins just downstream of the confluence with the North Branch River and ends at Western Avenue in Henniker.

The Contoocook River is classified as a Class B water 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 following designated uses are assigned to Class B waters: fishing, swimming and other recreational purposes and, after adequate treatment, for use as water supplies.

EPA notes that the State of New Hampshire adopted new criteria into their state 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 requirement to do so.

Segment NHRIV700030504-10 of the Contoocook River is on the New Hampshire 2016 303(d) list of impaired waters<sup>5</sup>. This segment has been identified as violating water quality standards for Aquatic Life (pH) and requiring a TMDL, however, the TMDL priority is low. Segment NHRIV700030504-11, the next segment downstream, is also listed as impaired for pH with a low TMDL priority. The source of the impairment for both segments is listed as unknown.

Based on the most current information available, EPA believes that the limitations and conditions contained in the Draft Permit represent the minimum level of control necessary to

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<sup>5</sup> <https://www.epa.gov/sites/production/files/2018-06/documents/2016-nh-303d-list-report.pdf>

ensure protection of all designated uses in the receiving waters.

#### 4.1 Available Dilution

##### 7 Day, 10 Year Low Flow

To ensure that discharges do not cause or contribute to violations of WQS under all expected circumstances, WQBELs are derived assuming critical conditions for the receiving water (*See EPA Permit Writer's Manual, Section 6.2.4*). For most pollutants and criteria, the critical flow in rivers and streams is some measure of the low flow of that river or stream. In accordance with New Hampshire's WQSs (RSA-A:8, VI, Env-Wq 1705.02 (d)), the available dilution for non-tidal rivers and streams is based on a known or estimated value of the lowest average flow which occurs for seven (7) consecutive days with a recurrence interval of once in ten (10) years (7Q10 flow). The 7Q10 is used for aquatic life and human health criteria for non-carcinogens, while the long-term harmonic mean flow is used for human health (for carcinogens only) in the receiving water. Furthermore, ten percent of the receiving water's assimilative capacity is held in reserve for future needs in accordance with New Hampshire's Surface Water Quality Regulations Env-Wq 1705.01.

A dilution factor equal to 30.9 was used in the development of the Draft Permit. This dilution factor is based on a revised estimate of the 7Q10 flow at outfall 001, which was calculated by NHDES<sup>6</sup>, following NHDES policy<sup>7</sup>, using gaged data and the Dingman<sup>8</sup> equation. The Dingman equation estimates the flow in ungaged, unregulated streams based upon watershed (basin) area, mean basin elevation, and the percent of the basin underlain by coarse-grained stratified drift in contact with streams. The 7Q10 just downstream of the Hillsborough WWCF was estimated using U.S. Geological Survey (USGS) gaging station flow records. The Hillsborough WWCF is upstream of the USGS gaging station on the Contoocook River in Henniker, New Hampshire, and is downstream of the following four (4) New Hampshire stream gaging stations: Contoocook River at Peterborough, Nubanusit Brook near Peterborough, North Branch River near Antrim, and Beard Brook near Hillsborough.

The 7Q10 flows at the USGS gaging station sites were calculated using Log-Pearson Type III statistics, based on gaging station records for years during which flow regulation was the same as

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<sup>6</sup> Email. From Amy Clark, NHDES to Michele Barden, EPA, May 11, 2015, Subject: Hillsborough.

<sup>7</sup> Inter-Department Communication: From Jeffrey G. Andrews, P.E., Supervisor, NHDES to George C. Berlandi, P.E., Supervisor, NHDES, June 24, 2002, Subject: Interim Final Policy on 7Q10 and Withdrawals for Fresh Water Surface Waters.

<sup>8</sup> 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.

This empirical equation estimates 7Q10 stream flow in un-gaged, unregulated streams in New Hampshire and Vermont as a function of watershed characteristics. The formula variables are watershed (basin) area, mean basin elevation, and the percent of the basin underlain by coarse-grained stratified drift in contact with streams.

is occurring today. The selected periods of record for each of the USGS gages, gage station identification numbers, and corresponding 7Q10 flow values, are listed below.

**Table 1: USGS Gaging Stations and 7Q10 flows used in developing dilution factor.**

Gaging Station Name	Gage Id.	Period of Record	7Q10 (cfs)
Contoocook River near Henniker	1085000	1951 – 1977	34.43
Contoocook River at Peterborough	1082000	1966 – 1977	8.11
Nubanusit Brook near Peterborough	1083000	1951 – 1989	3.22
North Branch River near Antrim	1084000	1926-1970	0.549
Beard Brook near Hillsborough	1084500	1947-1970	0.949

The upstream 7Q10 flow values were subtracted from the downstream 7Q10 flow value to estimate the 7Q10 contribution from the ungaged watershed area (i.e., the watershed area between the Contoocook River near Henniker gage and the upstream gages. The resulting 7Q10 flow is **21.602 cfs** (34.43 cfs - 8.11 cfs - 3.22 cfs - 0.549 cfs - 0.949 cfs).

Next, the Dingman equation was used to estimate the proportion of the ungaged watershed 7Q10 flow that is tributary to the Contoocook River upstream of the Hillsborough WWCF. This proportion is assumed to be equal to the ratio of the Dingman equation 7Q10 flow for the ungaged watershed area lying between Hillsborough WWCF and the upstream gages (8.898 cfs) to the Dingman equation 7Q10 flow for the ungaged watershed area lying between the Contoocook River near Henniker gage and the gages upstream (10.10 cfs). The resulting ratio is **0.881** (8.8984 cfs / 10.10 cfs).

Finally, the 7Q10 flow at the Hillsborough WWCF was calculated by multiplying the 7Q10 for the ungaged the watershed area between the Contoocook River near Henniker gage and the upstream gages (**21.602 cfs**) by the ratio **0.881**, (21.602 cfs \* 0.881 = **19.03 cfs**), and then adding back in all gaged flows upstream of the Hillsborough WWCF (Contoocook River at Peterborough, Nubanusit Brook near Peterborough, North Branch River near Antrim, and Beard Brook near Hillsborough) The resulting 7Q10 stream flow is **31.86 cfs** (19.03 cfs + 8.11 cfs + 3.22 cfs + 0.549 cfs + 0.949 cfs)

31.86 cfs is the 7Q10 flow *downstream*, rather than upstream, of the facility because the water source of the facility is *within* the watershed of the facility's outfall location.

### Dilution Factor

The following equation was used to calculate a dilution factor of 30.9.

$$\text{Dilution Factor} = \frac{Q_r}{Q_d} * 0.9$$

Where:

$Q_r$  = the receiving water 7Q10 flow downstream of the of the WWCF outfall (31.86 cfs)

$Q_d$  = the design flow (0.6 MGD or 0.928 cfs)

0.90 = factor to reserve 10 % assimilative capacity

$$\text{Dilution Factor} = \frac{31.86 \text{ cfs}}{0.928 \text{ cfs}} * 0.9 = 30.9$$

## 5 Proposed Effluent Limitations and Conditions

The proposed limitations and conditions, the basis 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 DMRs and in WET test reports from 2014 to 2017 were used to identify the pollutants of concern and to evaluate the discharge during the effluent limitations development process (*See Appendices A and B*).

#### 5.1.1 Wastewater Effluent Flow

A review of DMR data, from February 2014 through December 2017 shows that the average flow was 0.31 MGD, with a monthly average flow range from 0.103-0.735 MGD. It is noted that these values are monthly averages. The maximum daily flow range was from 0.145-0.928 MGD.

The Draft Permit includes an effluent flow limit based on the average daily design flow of the upgraded treatment facility which is 0.6 MGD. 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. Additionally, if the effluent flow rate exceeds 80 percent of the 0.6 MGD design flow (0.48 MGD) for a period of three (3) consecutive months then the Permittee must notify EPA and the NHDES-WD and implement a program to maintain satisfactory treatment levels.

#### 5.1.2 Biochemical Oxygen Demand (BOD<sub>5</sub>)

##### 5.1.2.1 BOD<sub>5</sub> Concentration Limits

BOD<sub>5</sub> concentration limits in the 2007 Permit are 30 mg/L, 45 mg/L and 50 mg/L for average monthly, average weekly and maximum daily, respectively. These were based on the secondary treatment regulations for POTWs found at 40 C.F.R. § 133.102(a). As can be seen from the DMR data in Appendix A, effluent BOD<sub>5</sub> concentrations for the period from February 2014 through December 2017 were well below these limits.

As the secondary treatment regulations in 40 C.F.R. § 133.102(a) have not changed, the Draft Permit continues the BOD<sub>5</sub> concentration-based limits of 30 mg/L, 45 mg/L and 50 mg/L for average monthly, average weekly and maximum daily, respectively.

### 5.1.2.2 BOD<sub>5</sub> Mass Limits

The BOD<sub>5</sub> mass limits in the 2007 Permit are 119 lb/day, 178 lb/day and 198 lb/day for average monthly, average weekly and maximum daily, respectively. These were based on the secondary treatment regulations for POTWs found at 40 C.F.R. § 133.102(a) and the then approved design flow of 0.475 MGD. As can be seen from the DMR data in Appendix A, effluent BOD<sub>5</sub> loads for the period from February 2014 through December 2017 were well below these limits.

Average monthly, average weekly and maximum daily allowable mass-based (load) limitations for BOD<sub>5</sub> shown in the Draft Permit are based on the antidegradation water quality study done by NHDES in 2008 (See Appendix C). Consistent with antidegradation requirements, the mass limits are set to maintain the loadings of BOD<sub>5</sub> at the level in the 2007 Permit.

Meeting both the mass-based and concentration-based limits is required; therefore, when flows are higher than 0.475 MGD, the concentrations will need to decrease in order to meet the mass-based limits. For example, when the Facility is at the design flow of 0.6 MGD, the average monthly concentration necessary in order to meet the mass-based limit will be 23.8 mg/L.

#### BOD Mass Loading Calculations:

Calculations of maximum allowable loads for average monthly and average weekly BOD<sub>5</sub> are based on the following equation:

$$L = C_d * Q_d * 8.34$$

Where:

L = Maximum allowable load in lb/day.

C<sub>d</sub> = Maximum allowable effluent concentration for reporting period in mg/L  
(reporting periods are average monthly and average weekly)

Q<sub>d</sub> = Prior design flow of facility in MGD (used to hold loading).

8.34 = Factor to convert effluent concentration in mg/L and design flow in MGD to lb/day.

$$30 \text{ mg/L} \times 8.34 \times 0.475 \text{ MGD} = 119 \text{ lb/day}$$

$$45 \text{ mg/L} \times 8.34 \times 0.475 \text{ MGD} = 178 \text{ lb/day}$$

$$50 \text{ mg/L} \times 8.34 \times 0.475 \text{ MGD} = 198 \text{ lb/day}$$

The monitoring frequency for BOD<sub>5</sub> remains once per week in the Draft Permit.



### 5.1.3 Total Suspended Solids (TSS)

#### 5.1.3.1 TSS Concentration Limits

The TSS concentration limits in the 2007 Permit are 30 mg/L, 45 mg/L and 50 mg/L for average monthly, average weekly and maximum daily, respectively. These were based on the secondary treatment regulations for POTWs found at 40 C.F.R. § 133.102(b). As can be seen from the DMR data in Appendix A, effluent TSS concentrations for the period from February 2014 through December 2017 were well below these limits.

As the secondary treatment regulations in 40 C.F.R. § 133.102(b) have not changed, the Draft Permit continues the TSS concentration-based limits of 30 mg/L, 45 mg/L and 50 mg/L for average monthly, average weekly and maximum daily, respectively.

#### 5.1.3.2 TSS Mass Limits

The TSS mass limits in the 2007 Permit are 119 lb/day, 178 lb/day and 198 lb/day for average monthly, average weekly and maximum daily, respectively. These were based on the secondary treatment regulations for POTWs found at 40 C.F.R. § 133.102(a) and the then approved design flow of 0.475 MGD. As can be seen from the DMR data in Appendix A, effluent TSS concentrations for the period from February 2014 through December 2017 were well below these limits.

Average monthly, average weekly and maximum daily allowable mass-based (load) limitations for TSS shown in the Draft Permit are based on the antidegradation water quality study done by NHDES in 2008 (See Appendix C). Consistent with antidegradation requirements, the mass limits are set to maintain the loadings of TSS at the levels in the 2007 Permit.

Meeting both the mass-based and concentration-based limits is required; therefore, when flows are higher than 0.475 MGD, the concentrations will need to decrease in order to meet the mass-based limits. For example, when the Facility is at the design flow of 0.6 MGD, the average monthly concentration necessary in order to meet the mass-based limit will be 23.8 mg/L.

TSS Mass Loading Calculations:

Calculations of maximum allowable loads for average monthly and average weekly TSS are based on the following equation:

$$L = C_d * Q_d * 8.34$$

Where:

L = Maximum allowable load in lb/day.

$C_d$  = Maximum allowable effluent concentration for reporting period in mg/L  
(reporting periods are average monthly and average weekly)

$Q_d$  = Prior design flow of facility in MGD (used to hold loading).

8.34 = Factor to convert effluent concentration in mg/L and design flow in MGD to lb/day.

$$30 \text{ mg/L} \times 8.34 \times 0.475 \text{ MGD} = 119 \text{ lb/day}$$

$$45 \text{ mg/L} \times 8.34 \times 0.475 \text{ MGD} = 178 \text{ lb/day}$$

$$50 \text{ mg/L} \times 8.34 \times 0.475 \text{ MGD} = 198 \text{ lb/day}$$

The monitoring frequency for TSS remains once per week in the Draft Permit.

#### **5.1.4 Eighty-Five Percent (85%) BOD<sub>5</sub> and TSS Removal Requirement**

In accordance with the provisions of 40 C.F.R. § 133.102(a)(3), (4) and (b)(3), the 2007 Permit required that the 30-day average percent removal for BOD<sub>5</sub> and TSS be not less than 85%. A review of DMR data from 2014 through 2017 shows that BOD<sub>5</sub> and TSS removal percentages averaged 95% and 95%, respectively. There were no violations of the 85% removal requirement for BOD<sub>5</sub> and two (2) violations of the 85% removal requirement for TSS (April 2014, 80%; December 2017, 84%) during that period.

The requirement to achieve 85% BOD<sub>5</sub> and TSS removal has been continued in the Draft Permit.

#### **5.1.5 pH**

Consistent with the requirements of New Hampshire's WQS at RSA 485-A:8 II, "The pH range 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 2017 shows that there have been two (2) violations (August 2014, 8.1 S.U.; October 2016, 6.09 S.U.) of the pH limitations. During that time pH values ranged from 6.0 – 8.1 standard units.

The pH requirements in the 2007 Permit are maintained in the Draft Permit as there has been no change in the WQS with regard to pH.

#### **5.1.6 Bacteria**

The limitations for *Escherichia (E. coli)* in the 2007 Permit are an average monthly limit of 126 colonies per 100 milliliters (ml) and a maximum daily limit of 406 colonies per 100 ml, which are based on the water quality standards for Class B waters (non-designated beach areas) found at RSA 485-A:8 II. The 2007 Permit requires that the average monthly value be reported as the geometric mean of the sampling results for the reporting month. Compliance with the average monthly value is determined from the reported geometric mean.

Between February 2014 and December 2017 there was one (1) violation of the bacteria effluent limitations (2/2015, 816). Based on DMRs submitted by the Permittee, the average, average monthly value for *E. coli* was 13.31cfu/100 ml, the monthly average ranged from 1-76 cfu/100 ml, and the maximum daily ranged from 4-816 cfu/100 ml).

The same limitations have been set in the Draft Permit and are therefore, consistent with the antibacksliding requirements of 40 CFR § 122.44(I).

The compliance monitoring frequency for *E. coli* in the Draft Permit is 3 times per week. Samples for *E. coli* compliance monitoring must be taken concurrently with samples for total residual chlorine.

### 5.1.7 Total Residual Chlorine (TRC)

The acute and chronic aquatic life criteria specified in the New Hampshire WQSs are 19 µg/l and 11 µg/l, respectively (See Env-Wq. 1703.21, Table 1703.1). The 2007 Permit includes a monthly average chlorine limit of 0.43 mg/L and a maximum daily limit of 0.74 mg/L.

Between February 2014 and December 2017, there were no violations of either the TRC effluent limitations. Based on DMRs submitted by the Permittee, the average, average monthly total residual chlorine concentration was 0.25 mg/L. The monthly average values range from 0.11-0.36 mg/L and the daily maximum values ranged from 0.19-0.62 mg/L.

In this Draft Permit, the proposed effluent limits are lower because the dilution factor has been reduced to 30.9 due to the increased facility design flow. The TRC average monthly and maximum daily limitations are based on the chronic and acute aquatic-life criteria, respectively. The Draft Permit limits were calculated by multiplying the chronic criterion (0.011 mg/L) and acute criterion (0.019 mg/L) by the dilution factor for the receiving water.

(chronic criteria \* dilution factor) = Chronic (Monthly Average)  
(11 µg/l \* 30.9) = 339.9 µg/l = 0.34 mg/L

(acute criteria \* dilution factor) = Acute (Maximum Daily)  
(19 µg/l \* 30.9) = 587.1 µg/l = 0.59 mg/L

The proposed limits are 0.34 mg/L as a monthly average, and 0.59 mg/L as a maximum daily. The proposed monitoring frequency remains once per day. Samples must be collected concurrently with the E. coli bacteria samples.

### 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 toxicity level of ammonia depends on the temperature and pH of the receiving water (USEPA 1999).

The 2007 Permit does not include ammonia limits but does require annual monitoring of ammonia nitrogen in conjunction with the annual whole effluent toxicity (WET) testing. A review of ammonia data submitted between February 2014 and December 2017 shows that effluent values range from 4.1 to 31 mg/L. All samples (n=4) were collected during the summer months of July or August. Maximum daily and average daily discharge concentrations of 27 and 25.25 mg/L, respectively, were reported in the 2011 Permit application.

The applicable ammonia water quality criteria are pH and, for chronic, temperature dependent and should be derived using New Hampshire Surface Water Quality Regulations at Chapter Env-Wq 1700, Table 1703.25. The chronic criteria are also dependent on whether early life stages of salmonid fish are present and the Contoocook River is within Essential Fish Habitat for Atlantic Salmon (*Salmo salar*), so EPA has assumed that salmonids could be present in the receiving

waters.

Ambient sampling conducted in 2007<sup>9</sup> indicates that the average summer pH for the Contoocook River upstream of the Hillsborough outfall was 6.5 S.U. and the average summer water temperature was 22° C. Ambient data was not collected during the winter months so EPA assumes that there was no change in average pH so a winter pH of 6.5 S.U. and an estimated winter temperature of 5° C were used in calculations.

As previously discussed, in 2016 the State of New Hampshire adopted revised WQS, which have been submitted to EPA for review and approval. Although those standards have yet to be approved by EPA, NHDES has informed EPA that meeting the revised ammonia criteria will be a state certification requirement. Therefore, EPA has evaluated the reasonable potential for ammonia using the 2016 NH adopted ammonia criteria which are more stringent than the previous criteria.

The applicable 2016 NH adopted criteria are summarized in Table 2.

**Table 2: Applicable Ammonia Criteria**

Season	2016 NH Adopted Criteria	
	Acute Criteria (CMC) (mg/L)	Chronic Criteria (CCC) (mg/L)
Summer	19.2	1.9
Winter	32.6	4.9

A query of NHDES’s “OneStop” database found no ambient data for ammonia nitrogen upstream of the Hillsborough WWCF. Ambient ammonia nitrogen data was also not collected as part of the Hillsborough Antidegradation Study. Ambient ammonia, however; was analyzed as part of the Facility’s annual WET testing. A review of sampling from 2014-2017 found all ambient ammonia concentrations were reported as non-detect; and therefore, the median is 0 mg/L.

In making a determination as to whether the discharge presents reasonable potential to cause or contribute to excursions above the instream water quality criteria for ammonia, the following mass balance equation, which accounts for ambient ammonia concentrations is used to project the instream ammonia concentrations downstream from the discharge under 7Q10 flow conditions.

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

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<sup>9</sup> NHDES. 2007. Hillsborough WWTF Antidegradation Study Data Summary.

Where:

- $C_r$  = resultant downstream ammonia nitrogen concentration  
 $Q_d$  = effluent flow (design flow = 0.6 MGD = 0.928 cfs)  
 $C_d$  = effluent concentration (maximum effluent ammonia nitrogen concentration reported in WET Reports) = 31 mg/L (Summer); No winter data available.  
 $Q_s$  = stream flow upstream ( $Q_s = Q_r - Q_d = 31.86 \text{ cfs} - 0.928 \text{ cfs} = 30.93 \text{ cfs}$ )  
 $C_s$  = background in-stream concentration (median); 0 mg/L.  
 $Q_r$  = estimated 7Q10 just downstream of Outfall 001 (31.86 cfs)

Therefore,

$$C_r = \frac{(0.928 \text{ cfs} * 31 \text{ mg/L}) + (30.92 \text{ cfs} * 0 \text{ mg/L})}{31.86 \text{ cfs}}$$

$$= 0.9 \text{ mg/L} < 3.71 \text{ mg/L (EPA-approved summer chronic criteria * 0.9)}$$

$$= 0.9 \text{ mg/L} < 1.71 \text{ mg/L (NH adopted, not EPA-approved summer chronic criteria * 0.9)}$$

As the calculations above show, there is no reasonable potential for ammonia in the effluent to cause or contribute to an excursion of the more stringent, chronic summer WQS. However, antidegradation requirements still apply. There is no winter effluent data available; and although it is likely that effluent ammonia concentrations will increase due to minimal or lack of nitrification during the winter months, EPA assumes that the winter effluent concentrations will not exceed the less stringent winter chronic criteria of 4.0 mg/L. EPA has added a monthly monitoring requirement for ammonia concentration so that reasonable potential can be fully evaluated in future permits.

#### Antidegradation Analysis

The antidegradation analysis requires that the Hillsborough WWCF hold its ammonia loading to the pre-upgrade level, which was determined to be 116.5 lb/day. NHDES based this load estimate on the 2005 NPDES application.

The Draft Permit contains seasonal ammonia limits applicable from June 1 through October 31. The average monthly load limit from June 1 through October 31 in the Draft Permit is 116.5 lb/day. From June 1 through October 31, the proposed monitoring frequency will be once per week. From November 1 through May 31, the monitoring frequency will be once per month.

### **5.1.9 Nutrients**

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

nitrogen in marine or estuarine ecosystems.

### **5.1.9.1 Nitrogen**

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

The Draft Permit includes a year-round quarterly monitoring and reporting requirement for total nitrogen which is the sum of nitrate, nitrite and total Kjeldahl nitrogen.

### **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 does not include any effluent limitations for total phosphorus.

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 that contain nutrients to surface waters, resulting in excessive plant growth or a decrease in dissolved oxygen, or both." Although numeric nutrient criteria have not yet been developed in New Hampshire, a total phosphorus concentration of 0.05 mg/L is considered by NHDES as a level of concern (NH Volunteer River Assessment Program).

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 Contoocook 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 Hillsborough WWCF is located within Ecoregion XIV, Eastern Coastal Plains. The recommended total phosphorus criteria for this ecoregion, found in Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV (EPA December 2000) is 31.25 µg/L (0.03125 mg/L).

EPA uses the effects-based Gold Book threshold as a general target applicable in free-flowing streams. As the Gold Book notes, there are natural conditions of a water body that can result in either increased or reduced eutrophication response to phosphorus inputs; in some waters more stringent phosphorus reductions may be needed, while in some others a higher total phosphorus threshold could be assimilated without inducing a eutrophic response. In this case, EPA is not aware of any evidence that the Contoocook 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 Contoocook 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 Hillsborough WWCF reported in its 2011 Permit application a maximum daily effluent concentration of 5.5 mg/L; based on 4 samples. This is the same maximum as reported in the antidegradation study. Dividing this effluent concentration by the dilution factor of 30.9 results in an instream concentration of 0.18 mg/L. Since this instream concentration is greater than the recommended Gold Book concentration of 0.1 mg/L, the discharge has the reasonable potential to cause or contribute to an in-stream water quality violation under critical conditions.

NHDES conducted instream monitoring, upstream of the Hillsborough WWCF as part of the antidegradation analysis, and all samples were reported as less than the detection limit of 0.05 mg/L. In this analysis, EPA used 0.05 mg/L as the background total phosphorus concentration.

#### Water Quality-based Effluent Limit

The Mass Balance equation states that,

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

Where

$C_r$  = resultant downstream total phosphorus concentration (must not exceed 0.09 mg/L to reserve 10% assimilative capacity)

$Q_d$  = effluent flow (design flow = 0.6 MGD = 0.928 cfs)

$Q_s$  = stream flow upstream = 30.93 cfs

$C_s$  = background in-stream total phosphorus concentration = 0.05 mg/L

$Q_r$  = estimated 7Q10 just downstream of Outfall 001 = 31.86 cfs

Rearranging the equation to solve for  $C_d$ :

$$C_d = \frac{(31.86 \text{ cfs} * 0.09 \text{ mg/L}) - (30.93 \text{ cfs} * 0.05 \text{ mg/L})}{0.928 \text{ cfs}}$$

$$= 1.42 \text{ mg/L}$$

The calculated WQBEL is less than the concentration limit of 3.47 mg/L identified in the January 15, 2008 letter<sup>10</sup> from NHDES, which summarized the antidegradation study. The WQBEL calculated above is lower as a result of the use of background data and the lower dilution factor.

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<sup>10</sup> Letter. From Paul Heitzler, P.E., Administrator, Water Division, Wastewater Engineering Bureau, NHDES to Ernest Butler, Chair, Hillsborough Water and Sewer Commission, January 15, 2008, Subject: Antidegradation Water Quality Study, Hillsborough Wastewater Treatment Facility, NPDES Permit No. NH0100111.



Antidegradation Analysis

The antidegradation analysis requires that Hillsborough hold its total phosphorus loading to pre-upgrade levels, which was determined to be 17.4 lb/day (3.47 mg/l at 0.6 MGD). NHDES based this load estimate on the Facility's 2005 NPDES application.

Given that the WQBEL is more protective, EPA has established a mass limit based on that value, 1.42 mg/L. To ensure a mass-based limit is protective under the worst-case conditions, the limit is calculated using the lowest expected receiving water flow and effluent flow. Hence, the upstream 7Q10 receiving water flow (30.93 MGD) and the lowest monthly average effluent flow during the review period (0.103 MGD, See Attachment A) are used. The numeric mass-based limit is determined based on the following equations:

$$C_d = \frac{Q_r C_r * 0.9 - Q_s C_s}{Q_d}$$

$$Q_d C_d + Q_s C_s = Q_r C_r (0.90)$$

and

$$M_d = Q_d C_d * 8.345$$

Substituting ( $Q_d C_d$ ) with ( $M_d/8.345$ ) in the first equation and solving for  $M_d$  results in:

$$M_d = (Q_r C_r (0.90) - Q_s C_s) * 8.345$$

where:

$M_d$  = mass-based phosphorus limit

$Q_d$  = effluent flow in MGD (lowest effluent monthly average flow = 0.103 MGD)

$C_d$  = effluent phosphorus concentration in mg/L (1.42 mg/L)

$Q_s$  = upstream 7Q10 flow (20.60 – 0.103 = 20.50)

$C_s$  = upstream river phosphorus concentration (0.05 mg/L)

$Q_r$  = downstream 7Q10 flow (31.86 cfs = 20.60 MGD)

$C_r$  = downstream river phosphorus concentration (Gold Book target = 0.100 mg/L)

0.90 = factor to reserve 10% assimilative capacity

8.345 = factor to convert from *MGD \* mg/L to lb/d*

Solving for  $M_d$  gives the maximum allowable mass the facility may discharge without violating water quality standards. This allowable discharge is 6.92 lb/d.

**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, chromium, copper, lead, nickel and zinc.

### 5.1.10.1 Applicable Metals Criteria

Metals may be present in both dissolved and particulate forms in the water column. However, extensive studies suggest that it is the dissolved fraction that is biologically available, and therefore, presents the greatest risk of toxicity to aquatic life inhabiting the water column. This conclusion is widely accepted by the scientific community both within and outside of EPA (Water Quality Standards Handbook, Chapter 3, Section 3.6 and Appendix J, EPA 2012 [EPA 823-B-12-002]). Also see <https://www.epa.gov/sites/production/files/2014-10/documents/handbook-chapter3.pdf>). As a result, state water quality criteria for cadmium, copper, lead, nickel and zinc are established in terms of dissolved metals. New Hampshire aluminum criteria are expressed as acid-soluble aluminum.

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. § 12.45(c) require, with limited exceptions, that effluent limits for metals in NPDES Permits be expressed as total recoverable metals.

For hardness dependent metals criteria, the estimated hardness of Contoocook River downstream of the treatment plant during critical low flow periods and design discharge flow was calculated based on median ambient and effluent hardness data as reported in the Facility's WET tests conducted in July of 2014 through 2017.

**Table 3: Contoocook River and Hillsborough WWCF Hardness**

WET Period	Effluent Hardness, mg/L (as CaCO <sub>3</sub> )	Ambient Hardness, mg/L (data collected upstream of discharge)
July 2017	43	11
July 2016	50	14
July 2015	No Data	No Data
July 2014	44	5.9
Median	44	11

The following mass balance equation was used to estimate the hardness of the receiving water,  $C_r$ , downstream of the discharge location.

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

$$C_r = \frac{(0.928 \text{ cfs} * 44 \text{ mg/L}) + (30.93 \text{ cfs} * 11 \text{ mg/L})}{31.86 \text{ cfs}}$$

$$C_r = 11.96 \text{ mg/L}$$

Where:

$C_r$  = resultant downstream hardness

$Q_d$  = effluent flow (design flow = 0.6 MGD = 0.928 cfs)

$C_d$  = effluent concentration (median effluent hardness concentration = 44 mg/L)

$Q_s$  = stream flow upstream ( $Q_s = Q_r - Q_d = 31.86 \text{ cfs} - 0.928 \text{ cfs} = 30.93 \text{ cfs}$ )

$C_s$  = background in-stream hardness (median) = 11 mg/L.

$Q_r$  = estimated 7Q10 just downstream of Outfall 001 (31.86 cfs)

The calculated receiving water hardness is 11.96 mg/L. The December 2016 NH adopted WQS at 1703.22(f) require that for a hardness less than 20 mg/L, a hardness of 20 mg/L is used in water quality calculations.

Table 4 presents the applicable water quality criteria for the selected metals according to the NH WQSs.

Although water quality criteria for most metals are present as either dissolved or total recoverable, the New Hampshire water quality regulations (Env-Wq-1700) for aluminum should be applied in terms of acid-soluble aluminum (*See* Table 1703-1, Note S).

For the purpose of developing WQBELs for aluminum in NH NPDES permits, EPA assumes that all of the aluminum in the receiving water and in the effluent is acid soluble, unless there is site specific data available indicating otherwise. So far, EPA is not aware of any site specific data regarding the fraction of soluble aluminum in the Contoocook River, in the vicinity of the Hillsborough WWCF or in the Hillsborough WWCF effluent. Therefore, for the purposes of this Draft Permit, EPA assumes that the ratio of acid soluble to total recoverable aluminum is 1. The NH freshwater acute and chronic criteria for aluminum is 750 µg/L and 87 µg/L, respectively for both the EPA-approved WQS and the NH adopted WQS.

**Table 4: Summary of Acute and Chronic Fresh Water Criteria for Metals at a hardness of 20 mg/l for NH Adopted Criteria (from NH WQS, Table 1703.1)**

Metal	NH Adopted Criteria	
	Acute Criteria (CMC) (µg/L)	Chronic Criteria (CCC) (µg/L)
Cadmium	0.39	0.22
Chromium	483	23
Copper	3.1	2.4
Lead	10.5	0.41
Nickel	120	13
Zinc	30.6	30.6

\*The aluminum water quality criteria in the NH WQSs are expressed as acid-soluble, and therefore; are not included in this table.

**5.1.10.2 Reasonable Potential Analysis**

To determine whether the effluent has the reasonable potential to cause or contribute to an exceedance above the in-stream water quality criteria for each metal, the following mass balance is used to project in-stream metal concentrations downstream from the discharge.

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

Solving for the receiving water metals concentration downstream of the discharge,  $C_r$  yields:

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

Where:

$Q_d$  = effluent flow (design flow = 0.6 MGD = 0.928 cfs)

$C_d$  = effluent metals concentration, in  $\mu\text{g/L}$  (maximum reported<sup>11</sup>)

$Q_s$  = stream flow upstream of the plant = 30.93 cfs

$C_s$  = upstream metals concentration, in  $\mu\text{g/L}$  (median)

$Q_r$  = estimated 7Q10 just downstream of Outfall 001 (31.86 cfs)

Reasonable potential is then determined by comparing this resultant in-stream concentration (for both acute and chronic conditions) with the criteria (times 0.9 to reserve 10% of the assimilative capacity as required by Env-Wq 1705.01) for each metal. In EPA's Technical Support Document for Water Quality Based Toxics Control, EPA/505/2-90-001, March 1991, commonly known as the "TSD", box 3-2 describes the statistical approach in determining if there is reasonable potential for an excursion above the maximum allowable concentration. If there is reasonable potential (for either acute or chronic conditions), the appropriate limit is then calculated by rearranging the above mass balance to solve for the effluent concentration ( $C_d$ ) using the criterion as the resultant in-stream concentration ( $C_r$ ). The results of this analysis with respect to aluminum, cadmium, chromium, copper, lead, nickel and zinc for both sets of applicable WQS are summarized in Table 5.

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<sup>11</sup> The Facility's effluent concentrations (from Appendix A) were characterized by the maximum reported value since there are less than 10 values. (See Appendix E).

**Table 5: Reasonable Potential Table for NH Adopted WQS**

Metal	Q <sub>d</sub>	C <sub>d</sub> <sup>1</sup> (Max Effluent Value)	Q <sub>s</sub>	C <sub>s</sub> <sup>2</sup> (Median)	Q <sub>r</sub> = Q <sub>s</sub> +Q <sub>d</sub>	C <sub>r</sub> = (Q <sub>d</sub> C <sub>d</sub> +Q <sub>s</sub> C <sub>s</sub> )/Q <sub>r</sub>	Criteria * 0.9		Reasonable Potential?	Limit = (Q <sub>r</sub> *Criteria*0.9 - Q <sub>s</sub> *C <sub>s</sub> )/ Q <sub>d</sub>	
							Acute (µg/L)	Chronic (µg/L)		Cr>Criteria * 0.9	Acute (µg/L)
	cfs	µg/L	cfs	µg/L	cfs	µg/L					
Aluminum <sup>3</sup>	0.928	80	30.93	104	31.85	103.29	675	78.30	Y (Chronic)	N/A	87
Cadmium		0		0		0	0.354	0.197	N	N/A	N/A
Chromium		0		0		0	434	20.8	N	N/A	N/A
Copper		15		0.5		0.92	2.77	2.12	N	N/A	N/A
Lead		2.3		0		0.07	9.47	0.369	N	N/A	N/A
Nickel		2.2		0		0.06	108	12.0	N	N/A	N/A
Zinc		36		5.5		6.39	27.6	27.6	N	N/A	N/A

<sup>1</sup>Data from the 2014-2017 Whole Effluent Toxicity (WET) testing (See Appendix A, Table 2).

<sup>2</sup>Median upstream data taken from WET testing on Contoocook River just upstream from the Hillsborough WWCF (see Appendix B).

<sup>3</sup>The water quality standard for Aluminum is acid soluble. The ratio of acid-soluble to total aluminum is assumed to be one unless a side by side test for acid soluble and total recoverable are done on the river upstream such that the river specific ratio can be determined.

As indicated in Table 5, there is reasonable potential that the discharge of aluminum may cause or contribute to an exceedance of the applicable chronic water quality criteria. The reasonable potential analysis is driven by the background concentration of aluminum in the Contoocook River and without the high background concentration Hillsborough would not be causing or contributing to an exceedance of WQS. The applicable criterion of 87 µg/L (0.087 mg/L) is more stringent than the effluent limit set in the antidegradation study, so the water quality based effluent limit is required.

However, antidegradation requirements still apply. Monitoring for aluminum, copper, lead, nickel and zinc will continue to be required as part of the annual WET tests.

#### Antidegradation Effluent Limits

Because the antidegradation study effluent set was small (i.e. less than 10), NHDES performed statistical analysis to determine whether the increase in effluent flow could cause degradation of the receiving water. Using a method from the Technical Support Document for Water Quality-based Toxics Control (TSD), NHDES calculated a projected 99<sup>th</sup>-percentile upper bound for each effluent metal concentration based on the maximum measured concentration multiplied by a reasonable potential factor found in the TSD, Table 3-1. See Appendix D for details of this statistical derivation. The resulting effluent concentration for each metal was put into the same mass balance equation described above and compared to the respective criteria. Table 6 shows the results of the Hillsborough WWCF antidegradation evaluation.

**Table 6: NHDES Antidegradation Study Results (See Appendix C for further detail)**

Hillsborough WWCF Antidegradation Study Results for Proposed Increased Discharge to the Contoocook River						
Parameter	Number of Effluent Sample "n"	Maximum Measured Effluent (µg/L)	TSD Table 3.1 Multiplication Factor	Max Value x Multiplication Factor	Maximum Allowable Permit Concentration to use less than 20% of the Remaining Assimilative Capacity (µg/L)	Anti-degradation Limit Needed?
Aluminum (chronic)	4	50	4.7	235	200.76	<b>yes</b>
Antimony (chronic)	4	0.5	4.7	2.4	86.68	no
Arsenic (chronic)	4	1.1	4.7	5.2	na*	na*
Beryllium (chronic)	4	0.5	4.7	2.4	24.79	no
Cadmium (chronic)	4	0.1	4.7	0.5	4.611	no
Chromium	4	0.5	4.7	2.4	148.49	no
Copper (chronic)	4	11	4.7	51.7	16.64	<b>yes</b>
Lead (chronic)	4	2	4.7	9.4	1.722	<b>yes</b>
Mercury (chronic)	4	0.1	4.7	0.5	4.84	no
Nickel (chronic)	4	3.7	4.7	17.4	99.87	no
Selenium (chronic)	4	0.8	4.7	3.8	27.49	no
Silver (acute)	4	0.1	4.7	0.5	1.922	no
Thallium (fish cons.)	4	0.5	4.7	2.4	39.44	no
Zinc (chronic)	4	37	4.7	174	232.50	no
Total Cyanide (chronic)	4	20	4.7	94	37.87	<b>yes</b>

\*Contoocook River impaired for Arsenic. WQ Standards are too low for laboratory detection. "Monitoring only" requirements would be applied until a TMDL is approved.

The antidegradation review found that the “increased discharge may result in a significant lowering of water quality in the Contoocook River with respect to aluminum, copper, lead and cyanide. As the footnote to the table explains, the effluent also contains arsenic at concentrations that would be deleterious to an already impaired river.” The recommended metals limits from the antidegradation analysis are shown below in Table 7.

The “maximum allowable permit concentrations” from the antidegradation analysis are applied as loading limits in the Draft Permit. The antidegradation process prevents lowering of water quality from increased discharges. Loading limits will focus antidegradation controls on these increased discharges, while avoiding excessively stringent limits at lower effluent flows. The load limits were calculated using the following equation:

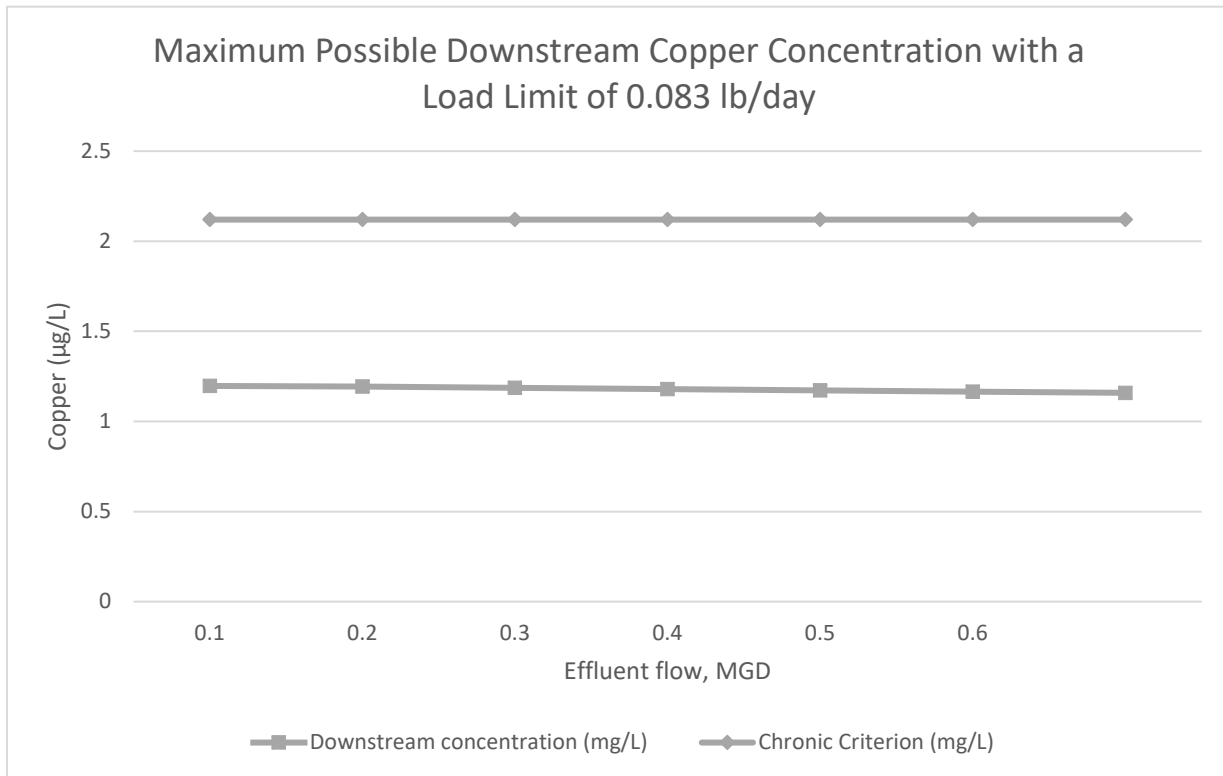
$$\text{Loading (lb/day)} = \text{Concentration (mg/l)} \times \text{Effluent Flow (0.6 MGD)} \times 8.34 \text{ (conversion factor)}$$

**Table 7: Permit Limits from Antidegradation Analysis**

Parameter	Recommended Concentration Limit	Corresponding Load-based Limit (assuming 0.6 MGD flow)
Aluminum (chronic)*	200.76 µg/L	1.0 lb/day
Copper (chronic)	16.64 µg/L	0.083 lb/day
Lead (chronic)	1.722 µg/L	0.0086 lb/day
Arsenic (fish concentration)	Monitoring recommended	N/A

EPA considered whether loading limits alone would be protective during low effluent flow conditions. A Permittee with only a load limit could discharge high concentrations of a pollutant when effluent flow is low. As effluent flow rates increase, the concentration of the pollutant required to meet the load limit decreases. Figure 3 shows the inverse relationship between copper concentrations and effluent flow rate at the proposed load limit (0.083 lb/day), and that downstream copper concentrations stay below the chronic criterion if the Permittee is meeting the load limit. For this reason, the antidegradation metals limits in the Draft Permit are expressed in load only. The exception is aluminum, where there is reasonable potential and thus a water quality based concentration limit is required in addition to the load based limit.

**Figure 3: Evaluation of the need for a concentration-based copper limit under various effluent scenarios.**



**\*Aluminum note:** The aluminum limit based on antidegradation (to preserve 20% RAC) is superseded by more recent data showing that there is actually no RAC available in the river. The upstream aluminum concentrations from February 2014 – December 2017 ranged from 55 µg/L to 200 µg/L, exceeding the chronic aquatic life criterion of 87 µg/L. Effluent concentrations during the same period range from 21 µg/L to 80 µg/L in the same period. Therefore, the aluminum limit in the Draft Permit is equal to the chronic water quality criteria for aluminum of 87 µg/L.

#### Aluminum Compliance Schedule and Interim Limit

The final aluminum limit is based on current New Hampshire, EPA approved, aluminum criteria to protect fresh water aquatic life. However, EPA will be issuing new aluminum criteria recommendations which are expected to be finalized within the coming months.<sup>12</sup> These new criteria will be pH, hardness and DOC dependent. EPA proposes a three (3) year compliance schedule for achieving the propose effluent limit. The permit also provides for an opportunity for the permittee to request modification of the permit if New Hampshire adopts the new EPA recommended aluminum criteria. See Section G.1. of the Draft Permit.

<sup>12</sup> More information about EPA’s work to develop new aluminum criteria recommendations is available at <https://www.epa.gov/wqc/2017-draft-aquatic-life-criteria-aluminum-freshwater>.



EPA's draft aluminum criteria recommendations indicate that the new aluminum criteria recommendations may be higher than the current recommendations. Because NHDES has indicated to EPA that its planned revisions to its aluminum criteria will be based on EPA's recommended criteria, EPA reasonably expects its new criteria may also be higher. 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 a relaxation or removal would not trigger anti-backsliding requirements as those requirements do not apply to effluent limits which have yet to take effect pursuant to a schedule of compliance. *See American Iron and Steel Institute v. EPA*, 115 F.3d 979, 993 n.6 (D.C. Cir. 1997) ("EPA interprets § 402 to allow relaxation of [an effluent limit] so long as the limit has yet become effective.")

See Section G.1. of the Draft Permit.

### 5.1.10.3 Cyanide

Compounds containing the cyanide group (CN) are used and readily formed in many industrial processes and can be found in a variety of effluents, such as those from steel, petroleum, plastics, synthetic fibers, metal plating and chemical industries. Cyanide occurs in water in many forms, including: hydrocyanic acid (HCN), the cyanide ion (CN<sup>-</sup>), simple cyanides, metalocyanide complexes, and as organic compounds. "Free Cyanide" is defined as the sum of the cyanide present as HCN and CN<sup>-</sup>. "Available" cyanide includes free cyanide plus those cyanide forms that can readily disassociate to release free cyanide. The relative concentrations of these forms depend mainly on pH and temperature. Currently, EPA has approved analytical methods for total, available, and free cyanide in water. Total cyanide includes all the forms of cyanide.

Both HCN and CN<sup>-</sup> are toxic to aquatic life. However, the vast majority of free cyanide usually exists as the more toxic HCN. And, since CN<sup>-</sup> readily converts to HCN at pH values that commonly exist in surface waters, EPA's cyanide criteria are stated in terms of free cyanide expressed as CN<sup>-</sup>. Free cyanide is a more reliable index of toxicity to aquatic life than total cyanide because total cyanide can include nitriles (organic cyanides) and relatively stable metalocyanide complexes.

Historically, cyanide has not been a monitored parameter at the Hillsborough WWCF. The antidegradation study done for the facility's flow increase monitored for this chemical in both the effluent from the Hillsborough WWTF and upstream in the Contoocook River. All effluent samples were reported as less than a detection limit of 20 µg/L; however, the study plan calls for a detection limit of 1.0 µg/L. The antidegradation study uses a maximum value of 20 µg/L in its

reasonable potential evaluation<sup>13</sup>. A detection limit of 1.0 µg/L was used for the ambient samples and the median ambient concentration is 1.0 µg/L. The maximum allowable permit limit calculated by the antidegradation study is 37.9 µg/L.

Using a mass-balance approach, EPA evaluated the discharge.

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

Where:

$C_r$  = resultant downstream cyanide concentration

$Q_d$  = effluent flow (0.6 MGD = 0.928 cfs)

$C_d$  = effluent concentration = <20 µg/L

$Q_s$  = stream flow upstream = 30.93 cfs

$C_s$  = background in-stream concentration (median) = 1.0 µg/L

$Q_r$  = estimated 7Q10 just downstream of Outfall 001 = 31.86 cfs

Therefore,

$$C_r = \frac{(0.928 \text{ cfs} * 0 \text{ µg/L}) + (30.92 \text{ cfs} * 1.0 \text{ µg/L})}{31.86 \text{ cfs}}$$

$$= 0.97 \text{ µg/L} < 4.68 \text{ µg/L (NH WQS criteria} * 0.9)$$

As the calculations above show, there is not reasonable potential for cyanide in the effluent to cause or contribute to an excursion of the more stringent, chronic WQS. Given that there were no measurable concentrations of cyanide reported in the effluent data collected for the antidegradation study, EPA does not believe that the Hillsborough WWTF cause or contributes to an exceedance of WQS. However, since the effluent data collected for the antidegradation study did not use a sufficiently sensitive test method, EPA has included a bi-monthly monitoring requirement for effluent cyanide.

Although the antidegradation analysis used total cyanide analysis, the effluent limits in the Draft Permit are for free cyanide to more accurately reflect the toxic fraction of cyanide in the effluent and the Contoocook River. Since no information is currently available regarding the ratio of free cyanide to total cyanide in the receiving water, EPA assumes that the ratio is 1.

### 5.1.11 Whole Effluent Toxicity

Sections 402(a)(2) and 308(a) of the CWA provide EPA and States with the authority to require toxicity testing. Section 308 specifically describes biological monitoring methods as techniques

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<sup>13</sup> Letter: Paul Heitzler, P.E., NHDES to Ernest Butler, Chair, Hillsborough Water & Sewer Commission, January 15, 2008, Subject: Antidegradation Water Quality Study, Hillsborough Wastewater Treatment Facility, NPDES Permit No. NH0100111, Table on page 3 of 5.

that may be used to carry out objectives of the CWA. Whole effluent toxicity (WET) testing is conducted to ensure that the additivity, antagonism, synergism and persistence of the pollutants in the discharge do not cause toxicity, even when the pollutants are present at low concentrations in the effluent. The inclusion of WET requirements in the Draft Permit will assure that the Facility does not discharge combinations of pollutants into the receiving water in amounts that would affect aquatic life or human health.

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

Further, EPA Region 1 current toxic policy requires toxicity testing for all dischargers such as the Hillsborough WWCF. In accordance with these policies, whole effluent acute effects are regulated by limiting the concentration that is lethal to 50% of the test organisms, known as the LC<sub>50</sub>. According to this policy dischargers having a dilution factor greater than 20 but less than 100:1 are required to conduct acute toxicity testing four times per year for two species.

The acute WET limit in the 2007 Permit is an LC<sub>50</sub> greater than or equal to 100% using the daphnid, *Ceriodaphnia dubia* (*C. dubia*), and the fathead minnow, *Pimephales promelas*, as the test species. The effluent results of WET tests conducted from 2014 to 2017 are summarized in Appendix A. During the review period there was one exceedance of the effluent limit of 100% effluent (no dilution) in July 2016.

Based on the potential for toxicity from domestic and industrial contributions, the state narrative water quality criterion, and in accordance with EPA national and regional policy and 40 C.F.R. § 122.44(d), the Draft Permit continues the effluent limits from the 2007 Permit including the test organism and the testing frequency. 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).

## 5.2 Industrial Pretreatment Program

There is one industrial user that contributes flows to the Hillsborough WWCF: Osram/Sylvania

Inc. Osram Sylvania is authorized to discharge up to 10,500 gallons per day (gpd) of continuous process wastewater and 15,000 gpd of continuous non-process wastewater. The same industrial user has also applied to the Hillsborough Water and Sewer Commission for approval of the discharge of remediation wastewater from a groundwater treatment system with a continuous flow of up to 15,000 gpd.

Osram/Sylvania is subject to local limits but not categorical pretreatment standards.

The Permittee is presently not required to administer a pretreatment program based on the authority granted under 40 C.F.R. 122.44(j), 40 C.F.R. Part 403 and Section 307 of the Act. However, the Draft Permit contains conditions that are necessary to allow EPA and the State of New Hampshire to ensure that pollutants from industrial users will not pass through the facility and cause violations of WQS in the receiving water, sludge use and disposal difficulties or cause interference with the operation of the treatment facility. The Permittee is required to notify EPA and the State of New Hampshire whenever a process wastewater discharge to the facility from a primary industrial category is planned, (see 40 CFR § 122 Appendix A for list) or if there is any substantial change in the volume or character of pollutants being discharged into the facility by a source that was discharging at the time of permit issuance. The permit also requires the permittee to: (1) report to EPA and NHDES the name(s) of all Industrial Users subject to Categorical Pretreatment Standards under 40 CFR §403.6 and 40 CFR Chapter I, Subchapter N (Parts 405-415, 417-436, 439-440, 443, 446-447, 454-455, 457-461, 463-469, and 471 as amended) who commence discharge to the POTW after the effective date of the permit, and (2) submit to EPA and NHDES copies of Baseline Monitoring Reports and other pretreatment reports submitted by industrial users.

### **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.

The Town of Hillsborough only disposes of sludge periodically when sludge accumulations exceed 12-18 inches in depth in the lagoons. Sludge was last removed in 2011 and disposed of at a landfill in Coventry, VT. The Draft Permit has been conditioned to ensure that sewage sludge use and disposal practices meet the CWA Section 405(d) Technical Standards. In addition, EPA-Region 1 has prepared a document entitled "EPA Region 1 NPDES Permit Sludge Compliance Guidance" and is available at:

<https://www3.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf>.

### **5.4 Infiltration/Inflow (I/I)**

Infiltration is groundwater that enters the collection system through physical defects such as cracked pipes, or deteriorated joints. Inflow is extraneous flow entering the collection system through point sources such as roof leaders, yard and area drains, sump pumps, manhole covers, tide gates, and cross connections from storm water systems. Significant I/I in a collection system may displace sanitary flow, reducing the capacity and the efficiency of the treatment works and

may cause bypasses to secondary treatment. It greatly increases the potential for sanitary sewer overflows (SSOs) in separate systems, and combined sewer overflows (CSOs) in combined systems.

The Draft Permit includes a requirement for the Permittee to control infiltration and inflow (I/I) within the sewer collections system it owns and operates. The Permittee must 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 Permittee, which requires that “all reasonable steps be taken to minimize or prevent any discharge violation of the Permit that has a reasonable likelihood of adversity affecting human health or the environment. EPA maintains that an I/I removal program is an integral component of ensuring Permit compliance with the requirements of the Permit under the provisions at 40 C.F.R. § 122.41(d) and (e).

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

## **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 assurance 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 Marine Fisheries Service (NMFS) administers § 7 consultations for freshwater 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 § 7(a)(2) of the ESA.

EPA has reviewed the federal endangered or threatened species of fish and wildlife to determine if any listed species might potentially be impacted by the re-issuance of the NPDES Permit. The review revealed that the small whorled pogonia (*Isotria medeoloides*) merits further discussion.

The small whorled pogonia, an orchid, has been identified in Hillsborough County, New Hampshire, where the Hillsborough WWCF is located. However, it has not been identified in the Town of Hillsborough, NH itself. In addition, the small whorled pogonia is found in "forests" with somewhat poorly drained soils and/or a seasonally high water table," according to the USFWS website. This species is not aquatic; therefore, it is unlikely that it would come into contact with the facility discharge. Furthermore, the primary threats to this species are habitat destruction and herbivory, factors not affected by this permit action.

EPA has made the determination that no protected species are present in the area influenced by the discharge. Therefore, EPA has made the assessment that consultation is not required for these protected species under section 7 of the ESA.

## 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.

According to the National Marine Fisheries Service (NMFS), the Merrimack River, to which the Contoocook River is tributary, is EFH for Atlantic salmon (*Salmo salar*). Based on discussions with the New Hampshire Fish and Game Department, no Atlantic salmon fry are presently stocked in any section of the Contoocook River. This stretch of the river is used by salmon smolts in spring months for downstream passage to the sea. Adult Atlantic salmon returning to the river from the ocean do not make it up this far because they are collected at a dam in Lawrence, MA primarily for use as broodstock.

EPA has determined that the Draft Permit has been conditioned in such a way so as to minimize any adverse impacts on Atlantic salmon EFH for the following reasons:

- The permit prohibits the discharge to cause a violation of State WQS.
- The permit contains water-quality based limits for total residual chlorine, *E. coli*, ammonia, total phosphorus, aluminum, copper, lead, and cyanide.
- The permit prohibits the discharge of pollutants or combinations of pollutants in toxic amounts.
- The permit requires toxicity testing four times per year to ensure that the discharge does not present toxicity problems.

EPA believes the Draft Permit adequately protects EFH and therefore additional mitigation is not warranted. NMFS will be notified and EFH consultation will be reinitiated if adverse impact to EFH are detected as a result of this permit action or if new information becomes available that changes the basis for these conclusions.

## **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 Michele Barden, U.S. EPA, Office of Ecosystem Protection, Municipal Permits Branch, 5 Post Office Square, Suite 100 (OEP06-1), Boston, Massachusetts 02109-3912 or via email to [barden.michele@epa.gov](mailto:barden.michele@epa.gov).

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

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

## **8 EPA Contact**

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

Michele Barden  
EPA New England, Region1  
5 Post Office Square, Suite-100 (OEP06-1)  
Boston, MA 02109-3912  
Telephone: (617) 918-1539, FAX: (617)918-0539  
Email: [barden.michele@epa.gov](mailto:barden.michele@epa.gov)

March 2019

Ken Moraff, Director  
Office of Ecosystem Protection  
U.S. Environmental Protection Agency



Figure 1: Locus Map

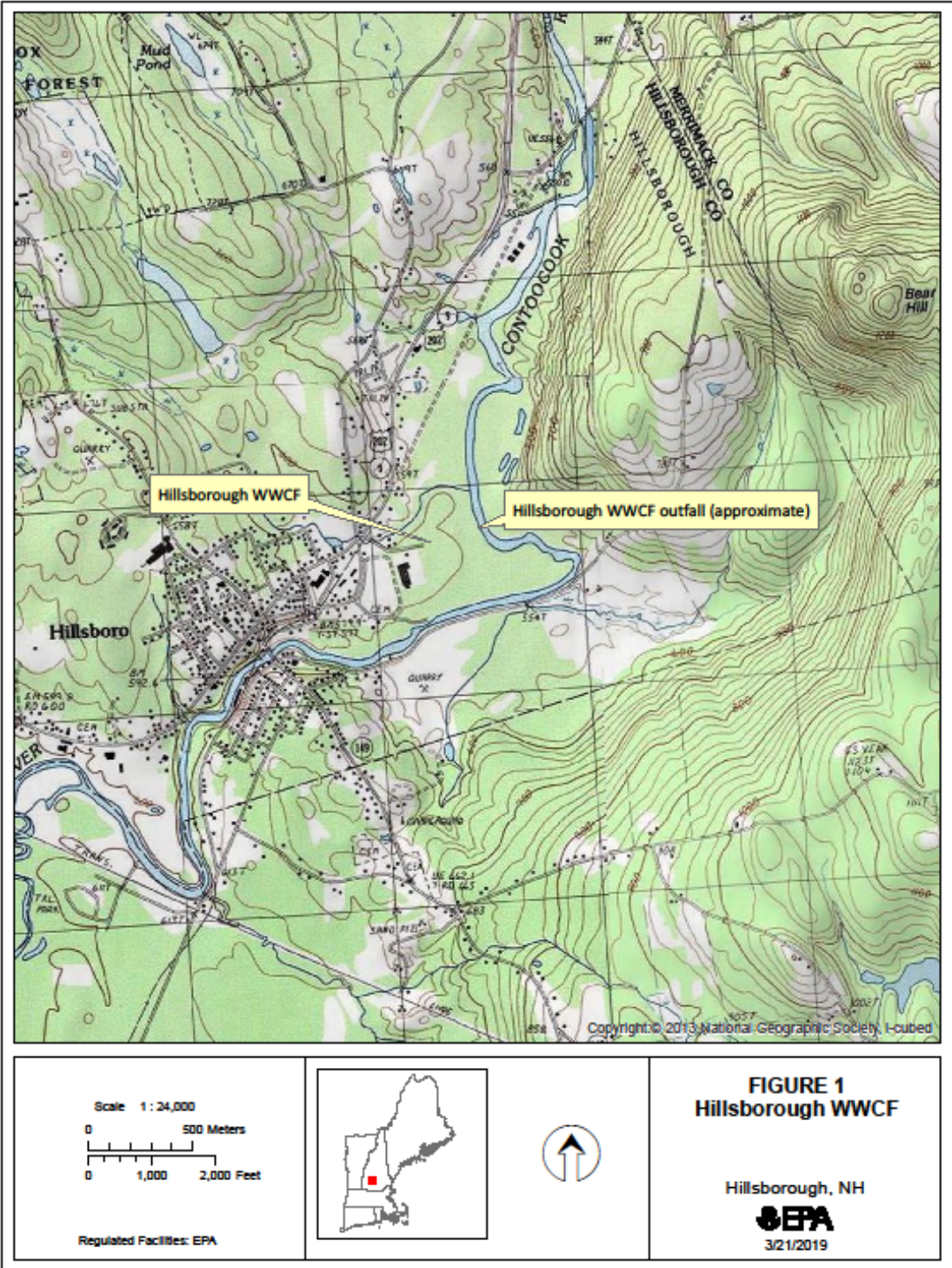
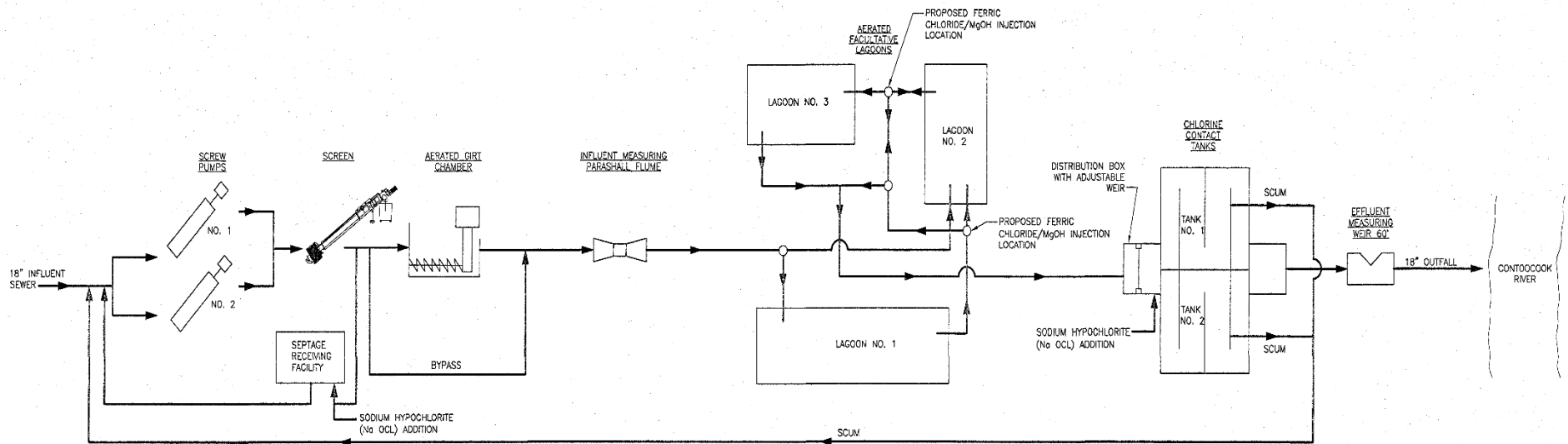


Figure 2: Flow diagram of the Hillsborough WWCF



PROCESS FLOW SCHEMATIC  
NOT TO SCALE

Effluent Data from Discharge Monitoring Reports (DMRs)

	Flow		BOD <sub>5</sub>					BOD % Removal	TSS					TSS % Removal
	(MGD)		(mg/L)			lb/day	lb/day	%	(mg/L)			lb/day	lb/day	%
	Average Monthly (Rolling Average*)	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Maximum Daily	Minimum	Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Maximum Daily	Minimum
<b>Effluent Limit</b>	<b>Report</b>	<b>Report</b>	<b>30</b>	<b>45</b>	<b>50</b>	<b>119</b>	<b>198</b>	<b>85%</b>	<b>30</b>	<b>45</b>	<b>50</b>	<b>119</b>	<b>198</b>	<b>85%</b>
Dec-17	0.305	0.362	4.5	10	10	11.4	23.4	96%	18.8	22.3	22.3	47.9	54.3	84%
Nov-17	0.425	0.669	4.6	9	9	19.4	44.6	97%	6.6	7.9	11.2	21.7	30.5	94%
Oct-17	0.223	0.568						100%	5.8	8.1	8.1	9.6	14.5	97%
Sep-17	0.256	0.349						100%	6.4	8.7	8.7	13.9	19.2	98%
Aug-17	0.314	0.221						100%	2.1	3.8	2.6	3.7	4	99%
Jul-17	0.231	0.356	1.5	6	6	2.9	11.5	99%	2.6	4.7	4	4.6	7	98%
Jun-17	0.476	0.745	5.3	13	13	41.3	58.2	96%	4.8	5.5	5.5	17.4	23.4	96%
May-17	0.573	0.685	5.8	10	10	28.8	53.2	94%	11.5	18.9	18.9	55.9	97.9	86%
Apr-17	0.658	0.928	6.5	15	9	46.6	55.4	92%	12.4	20.1	20.1	64.1	83	85%
Mar-17	0.396	0.617	5.8	8	15	30.9	47.9	96%	8.3	9.2	9.2	27.8	34.1	92%
Feb-17	0.282	0.425	8.3	9	9	19.6	23.6	96%	10	13.1	13.1	24.4	32.4	95%
Jan-17	0.289	0.356	9.3	10	10	22.5	23.7	95%	16.2	18.6	18.6	41.3	51.4	85%
Dec-16	0.233	0.291	6.2	12	12	12.2	23.7	97%	18.7	20.5	20.5	35.6	41.2	89%
Nov-16	0.159	0.195	3	12	12	3.7	14.7	99%	10.3	11.6	12.7	13.9	19.2	95%
Oct-16	0.121	0.189	1.5	9	6	1.4	5.7	99%	5.7	7	7	5.6	7.5	96%
Sep-16	0.103	0.145	6.8	19	19	6.5	17	97%	5.7	6.5	6.5	5.4	7.5	97%
Aug-16	0.127	0.238						100%	4	4.8	4.8	4.7	6.7	98%
Jul-16	0.128	0.197	1	5.6	2.6	1	2.6	100%	6.1	8.9	13	6.1	12.9	97%
Jun-16	0.169	0.228	7.4	10	10	10.5	15.4	94%	3	4.3	4.3	4.1	6.1	98%
May-16	0.223	0.332	8.6	14	14	17	30.8	93%	2.4	2.6	2.6	4.6	5.3	98%
Apr-16	0.338	0.448	7.7	9.1	9.1	20.6	23.3	93%	2.8	3.8	3.8	7.4	9.7	98%
Mar-16	0.442	0.538	8.9	12.6	12.6	32.6	48.3	93%	4	5.6	5.6	15	20.6	94%
Feb-16	0.325	0.456	11.7	13	13	30.5	38.3	90%	7.3	8.3	8.3	19.4	24.8	94%
Jan-16	0.291	0.416	11.8	16.9	16.9	28.1	42.1	92%	4.4	7.7	7.7	10	14.7	94%
Dec-15	0.241	0.374	7.2	10.1	10.1	15.7	28.5	94%	2.9	3.6	4.7	6.3	14.2	98%
Nov-15	0.232	0.3	7.8	11.8	11.8	15.7	26.8	95%	2.4	3.5	3.5	4.6	7.5	98%
Oct-15	0.211	0.367	6.6	8.8	8.8	11.5	12.8	97%	2.3	4.4	4.4	4.4	7.6	99%
Sep-15	0.15	0.225	6.3	6.6	6.6	7.6	9.9	96%	2.3	2.5	2.5	2.8	3.6	99%
Aug-15	0.138	0.179	5.9	9.6	8.5	7.1	10.1	97%	5.5	6.6	6.6	6.9	8.9	97%
Jul-15	0.277	0.588	7.2	7.5	9.6	13.9	19.1	96%	5	7	6.2	11.3	21.5	97%
Jun-15	0.211	0.244	9.6	11.4	11.4	17.5	21.9	93%	3.7	4.2	4.2	6.9	7.3	98%
May-15	0.249	0.425	7.3	8.8	8.8	14.1	22.5	95%	4.8	10.1	8.5	10	21.8	97%
Apr-15	0.506	0.647	10.4	14.6	14.6	42.1	58	90%	7.6	7.7	10.1	31	40.6	90%
Mar-15	0.225	0.371	12.8	14.6	14.6	22.9	29.4	92%	8	8.7	8.7	13.5	15.5	94%
Feb-15	0.181	0.222	10.5	13.4	13.4	15.9	18.3	95%	9	10	10	13.7	15.1	94%
Jan-15	0.346	0.69	9.9	11.4	11.4	26	32	92%	7.2	7.5	7.5	19.7	30	94%



	pH		Escherichia Coli		Total Residual Chlorine	
	(S.U)		cfu/100 ml		mg/L	
	Minimum	Maximum	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
<b>Effluent Limit</b>	6.5	8	126	406	0.43	0.74
Dec-17	6.5	7.3	30	123.6	0.27	0.40
Nov-17	6.5	7.6	76	261.3	0.36	0.53
Oct-17	6.5	7.7	28	110.6	0.19	0.30
Sep-17	6.5	7.3	5	65.1	0.23	0.32
Aug-17	6.6	7.2	2	11	0.17	0.34
Jul-17	6.9	7.2	3	54.6	0.18	0.33
Jun-17	6.8	7.2	4.9	13.1	0.18	0.27
May-17	6.8	7.5	18	139.6	0.31	0.50
Apr-17	7.1	7.3	16	135	0.34	0.44
Mar-17	7.1	7.5	17	75.9	0.31	0.44
Feb-17	7.2	7.4	14	46.2	0.31	0.42s
Jan-17	6.7	7.4	13.5	50.4	0.21	0.36
Dec-16	6.6	7.5	24.6	260.3	0.34	0.43
Nov-16	6.5	7.3	4	73.3	0.26	0.35
Oct-16	6	7.5	3	24.6	0.24	0.57
Sep-16	6.5	7.1	10	50.4	0.21	0.35
Aug-16	6.5	6.7	3	24.3	0.23	0.50
Jul-16	6.6	7.1	3	36.3	0.26	0.41
Jun-16	7	7.2	2	58.3	0.26	0.39
May-16	7	7.2	2	36.4	0.24	0.48
Apr-16	7.1	7.2	10	71.2	0.29	0.41
Mar-16	6.8	7.2	39	59.9	0.32	0.40
Feb-16	6.9	7.3	28	112.4	0.28	0.38
Jan-16	7.3	7.6	14	61.6	0.32	0.46
Dec-15	7.3	7.5	28	77.1	0.27	0.43
Nov-15	7.3	7.5	4	36	0.26	0.45
Oct-15	7	7.4	3	34	0.20	0.31
Sep-15	6.9	7.5	1.4	4	0.31	0.39
Aug-15	7	7.3	2	12	0.27	0.62
Jul-15	6.9	7.2	6	24	0.26	0.44
Jun-15	7	7.3	3	21	0.31	0.58
May-15	7.02	7.35	2	31	0.29	0.46
Apr-15	6.9	7.2	2	22	0.36	0.46
Mar-15	6.8	7.1	5	98	0.28	0.43

	pH		Escherichia Coli		Total Residual Chlorine	
	(S.U)		cfu/100 ml		mg/L	
	Minimum	Maximum	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Effluent Limit	6.5	8	126	406	0.43	0.74
Feb-15	6.5	7	42	816	0.26	0.34
Jan-15	6.7	7.1	28	110	0.27	0.39
Dec-14	6.9	7.3	27	54	0.20	0.32
Nov-14	6.8	7.6	5	81	0.20	0.44
Oct-14	6.8	7.2	1	10	0.13	0.21
Sep-14	6.8	8	2	10	0.22	0.33
Aug-14	6.8	8.1	25	110	0.26	0.44
Jul-14	6.9	7.3	16	360	0.14	0.27
Jun-14	7	7.4	3	32	0.11	0.19
May-14	6.7	7	2	4	0.15	0.29
Apr-14	6.8	7.8	6	110	0.35	0.46
Mar-14	6.6	7.7	38	240	0.28	0.46
Feb-14	6.5	7.1	4	12	0.29	0.41
Min	6	6.7	1	4	0.11	0.19
Max	7.3	8.1	76	816	0.36	0.62
Avg	6.81	7.35	13.31	90.71	0.25	0.40
N=	47	47	47	47	47	47
Exceedences	1	1	0	1	0	0

	LC50-Ceriodaphnia	LC50 - Pimephales	Ammonia Nitrogen
	%	%	mg/L
	Maximum Daily	Maximum Daily	Maximum Daily
Effluent Limit	100%	100%	Report
Jul-17	100%	100%	23
Jul-16	77.1%	100%	4.1
Aug-15	100%	83%	31
Jul-14	100%	100	21
Min	77.1%	83%	4.1
Max	100%	100%	31
Avg	94%	96%	19.78
N=	4	4	4
Exceedences	1	1	N/A

Effluent Data from WET Reports

	Hardness	Total Recoverable Aluminum	Total Recoverable Cadmium	Total Recoverable Chromium	Total Recoverable Copper	Total Recoverable Lead	Total Recoverable Nickel	Total Recoverable Zinc
		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
	Maximum Daily	Maximum Daily	Maximum Daily	Maximum Daily	Maximum Daily	Maximum Daily	Maximum Daily	Maximum Daily
Effluent Limit	Report	Report	Report	Report	Report	Report	Report	Report
Jul-17	43	0.08	<0.0001	<0.001	0.015	0.0023	0.0022	0.036
Jul-16	50	0.046	<0.0005	<0.002	0.008	0.0007	0.002	0.035
Jul-15		0.035	<0.0005	<0.002	0.004	0.0007	<0.002	0.017
Jul-14	44	0.021	<0.0005	<0.002	0.003	<0.0005	<0.002	0.007
Min	43	0.021	<0.0001	<0.001	0.003	<0.0005	<0.002	0.007
Max	50	0.08	<0.0005	<0.002	0.015	0.0023	0.0022	0.036
Avg	45.6667	0.0455	0	0	0.0075	0.000925	0.00105	0.02375
Median	44	0.0405	0	0	0.006	0.0007	0.001	0.026
Count	3	4	4	4	4	4	4	4





S. Webster



The State of New Hampshire  
**DEPARTMENT OF ENVIRONMENTAL SERVICES**

Thomas S. Burack, Commissioner



January 15, 2008

Mr. Ernest Butler, Chair  
Hillsborough Water & Sewer Commission  
P.O. Box 2216  
Hillsborough, New Hampshire 03244

**Subject:** Antidegradation Water Quality Study  
Hillsborough Wastewater Treatment Facility  
NPDES Permit No. NH0100111

Dear Mr. Butler:

On May 4, 2007 the New Hampshire Department of Environmental Services (NHDES) met with town officials, the town's consultant, and Mike Butler, NH Water Council to discuss the NHDES requirement that an antidegradation water quality study be conducted prior to Hillsborough's planned upgrade and increase in design flow at the Hillsborough Wastewater Treatment Facility (WWTF).

Background

The intent of the antidegradation water quality study was to gather water quality data from the Contoocook River and the WWTF and then use the resulting data in a mass balance equation (desktop model) to evaluate whether an increased discharge from the WWTF would impact the water quality and existing uses of the Contoocook River downstream of the WWTF. The antidegradation rules apply to every pollutant in the WWTF's discharge.

During the May 4 meeting, we discussed the concept of "loading" to the receiving water with respect to the mass of BOD, TSS, nutrients, toxic organics, and metals present in the WWTF effluent as it is discharged to the receiving water. The Town representatives at the meeting expressed that it is likely that the Hillsborough WWTF upgrade (from 0.475 mgd to 0.6 mgd) will be designed such that the loading of BOD, TSS and nutrients would not increase after the upgrade is complete. In other words, the loadings allowed under the current NPDES permit would be held. The current loading of these parameters, based on Hillsborough's permit and application are:

- average monthly BOD and TSS loading is 119 pounds per day (based on the 2001 NPDES permit);
- average monthly ammonia nitrogen is 116.5 pounds per day (estimate based on 2005 NPDES application);
- average monthly phosphorus is 17.4 pounds per day (estimate based on 2005 NPDES application).

Please note that to hold the current loading, the permitted concentrations (mg/L) of these parameters will be reduced to 23.8 mg/L BOD/TSS, 23.3 mg/L total nitrogen, and 3.47 mg/L total phosphorus. With respect to toxic organic compounds, NHDES expects, based on Hillsborough's NPDES application data, that there are no volatile organic compounds or other organics present in the WWTF effluent. Therefore, NHDES would not expect any additional loading of organics after the upgrade is complete.

With respect to metals, the WWTF effluent contains elevated concentrations according to Hillsborough's NPDES application data, WET test data, and data collected under EPA's request for information in accordance with Section 308 of the federal Clean Water Act. Therefore, measurement of the concentration of metals in the Contoocook River and the effluent was needed to support Hillsborough's antidegradation study. The results of the antidegradation study were used in a desktop model to find allowable future permit concentrations that would not degrade water quality in the Contoocook River. Also, the current WWTF data were used in calculations to determine whether there will be reasonable potential for the effluent to exceed the allowable future permit concentration.

#### Technical Approach

Metals samples were collected from the river on four separate dates when the flow in the Contoocook River was no greater than 3 times the 7Q10 flow. Samples were collected using clean sampling techniques, and the samples were analyzed using trace metal analyses in order to ensure the lowest possible detection limits. The resulting data obtained in this manner defines the existing water quality in the Contoocook River upstream of Hillsborough's WWTF discharge. Four rounds of river data were averaged and used in a desktop model described below.

The Hillsborough WWTF effluent was simultaneously sampled, though no trace metal analyses were performed. It is not necessary to use trace metal analyses with WWTF effluent since the metals concentrations are typically detectable with standard analytical techniques. Four rounds of effluent data were averaged and used in a desktop model described below.

**Permit Limit Calculator Model:** The Permit Limit Calculator model uses the mass balance equation and the water quality relationships in Figure 1 to compute:

- the downstream river assimilative capacity,
- the remaining assimilative capacity,
- the 10% reserve capacity concentration,
- the maximum allowable downstream river concentration to ensure that no more than 20% of the remaining assimilative capacity is used by the WWTF proposed increased discharge, and
- back calculates the allowable future WWTF discharge concentration.

Figure 1 shows the relationship between the terms "assimilative capacity", "remaining assimilative capacity", "10% reserve capacity", and "20% of the remaining assimilative capacity".

The maximum allowable downstream river concentration necessary to ensure that no more than 20% of the remaining assimilative capacity is used by the WWTF proposed discharge is calculated thus:

$$\left[ \{0.9 \text{ Assimilative Capacity Concentration} - \text{Existing Water Quality Concentration}\} * 0.2 \right] + \text{Existing Water Quality}$$

Next, the allowable future permit concentration is calculated thus:

$$\frac{[\text{proposed Loading}] - (\text{Upstream Ambient Loading})}{\text{proposed WWTF flow} * 8.34}$$

**Evaluating the Reasonable Potential:** The current WWTF effluent data were used to evaluate whether there would be reasonable potential for the effluent to exceed the future maximum allowable permit concentration. This is achieved through the use of the statistical approach outlined in *Technical*

Mr. Ernest Butler  
Hillsborough Antidegradation Study  
January 15, 2008  
Page 3 of 5

*Support Document for Water Quality-Based Toxics Control*, March 1991, EPA/502/2-90-001 in Section 3. The table below shows the results of the Hillsborough WWTF reasonable potential evaluation:

Contoocook River/Hillsborough WWTF						
	Average of 4 Effluent samples (mg/L)	Maximum Value (mg/L)	Reasonable Potential Multiplication Factor	Max Value*Factor (mg/L)	Maximum Allowable Permit Concentration (mg/L)	Reasonable Potential? (yes/no)
Aluminum	0.03275	0.050000	4.7	0.2350	0.200764	yes
Antimony	0.000500	0.000500	4.7	0.0024	0.08668	no
Arsenic	0.001000	0.001100	4.7	0.0052	na*	na*
Beryllium	0.000500	0.000500	4.7	0.0024	0.02479	no
Cadmium	0.000100	0.000100	4.7	0.0005	0.004611	no
Chromium	0.000500	0.000500	4.7	0.0024	0.148487	no
Copper	0.005550	<u>0.011000</u>	4.7	0.0517	<u>0.016644</u>	yes
Lead	0.000975	<u>0.002000</u>	4.7	0.0094	<u>0.001722</u>	yes
Mercury	0.000100	0.000100	4.7	0.0005	0.004837	no
Nickel	0.002450	0.003700	4.7	0.0174	0.099866	no
Selenium	0.000575	0.000800	4.7	0.0038	0.027491	no
Silver	0.000100	0.000100	4.7	0.0005	0.001922	no
Thallium	0.000500	0.000500	4.7	0.0024	0.039441	no
Zinc	0.022750	0.037000	4.7	0.1739	0.232503	no
Cyanide	0.020000	0.020000	4.7	0.0940	0.037869	yes

\* Contoocook River impaired for Arsenic. WQ Standards are too low for standard laboratory detection. "Monitoring only" requirements would be applied until a TMDL is approved.

### Conclusion

The Permit Limit Calculator model results and the reasonable potential evaluation show that Hillsborough's proposed increased discharge may result in a significant lowering of water quality in the Contoocook River with respect to aluminum, copper, lead, and cyanide. As the footnote to the table explains, the effluent also contains arsenic at concentrations that would be deleterious to an already impaired river.

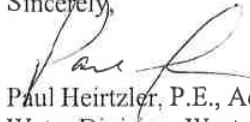
It is important to note that with only 4 samples, the Reasonable Potential statistical approach uses a high coefficient of variation (CV), which in turn, yields a high multiplying factor. The factor is multiplied to the maximum value in the dataset, so the resulting number is elevated. In the case of cyanide and aluminum, it appears that more samples (greater "n") would have yielded a lower multiplying factor. It follows that there might not be reasonable potential to exceed the maximum allowable permit concentration. Collecting more samples may change the statistic, and the result might be "no reasonable potential to exceed" the calculated permit limit.

For those parameters determined to have reasonable potential, Hillsborough would be subject to permit limits. The limits would be based on the values listed in the table above under "Maximum Allowable Permit Concentrations". Since Hillsborough already is covered under an existing permit, these new permit limits would not go into affect until Hillsborough's next permit reissuance, or when the new plant upgrade is complete. When the new plant upgrade is complete, Hillsborough's permit would need to be reissued.

Mr. Ernest Butler  
Hillsborough Antidegradation Study  
January 15, 2008  
Page 4 of 5

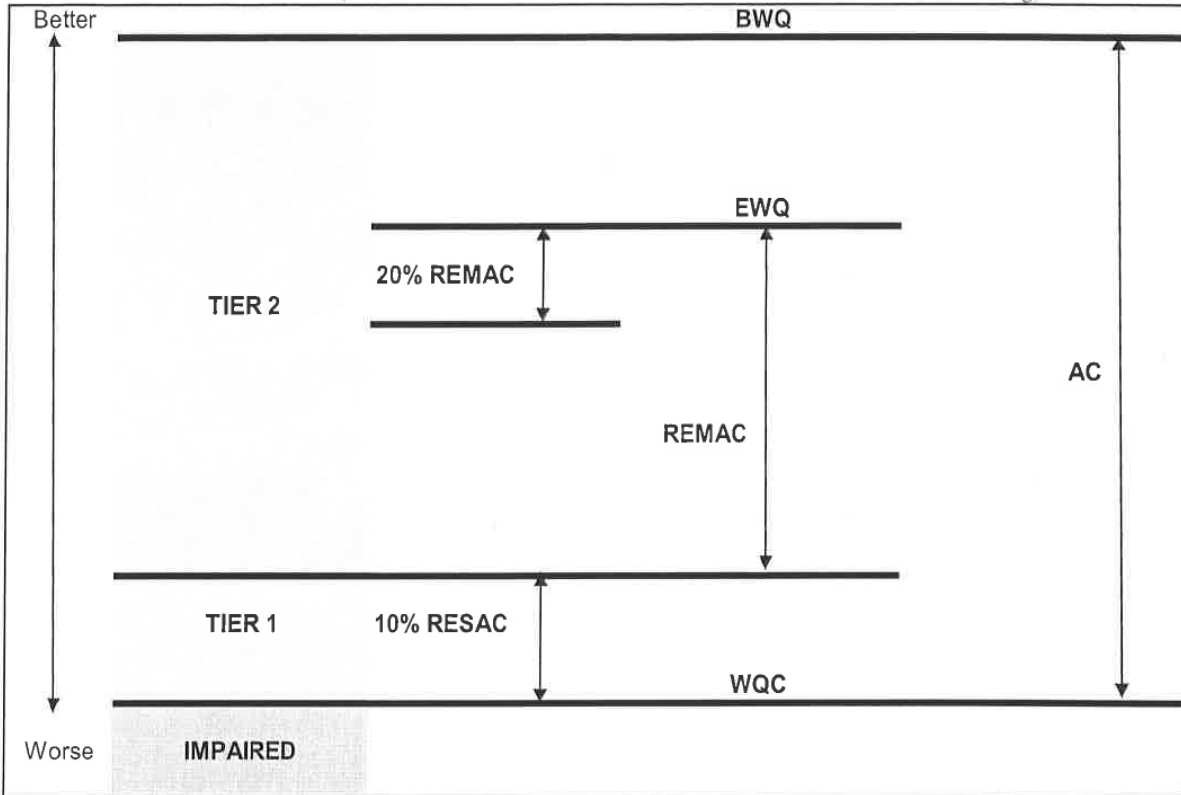
Please feel free to contact me at (603) 271-2001 or Stergios Spanos at (603) 271-6637 with any questions, or if you wish to meet to discuss any issue related to the antidegradation study.

Sincerely,



Paul Heirtzler, P.E., Administrator  
Water Division, Wastewater Engineering Bureau

cc: Mike Butler, NH Water Council  
Paul Dutton, Hillsborough WWTF  
Harry Stewart, P.E., WD  
Thomas Burack, Commissioner  
Paul Currier, WD/WMD  
Stergios Spanos, P.E., WD/WWEB  
Susan Willoughby, P.E., WD/WWEB  
Brian Pitt, USEPA New England



**FIGURE 1. WATER QUALITY RELATIONSHIPS USED IN THE PERMIT LIMIT CALCULATOR MODEL**

Where:

- BWQ = Best Possible Water Quality (mass/L) – assumed to be zero
- EWQ = Existing Water Quality downstream of WWTF at existing permitted load (mass/L)
- WQC = Water Quality Criteria (mass/L)
- AC = Assimilative Capacity (mass/L) =  $WQC - BWQ$
- 10% RESAC = 10% Reserve Assimilative Capacity =  $AC * 0.9$  (mass/L)
- REMAC = Remaining Assimilative Capacity (mass/L) =  $(AC * 0.9) - EWQ$
- 20% REMAC = 20% Remaining Assimilative Capacity (mass/L)

Maximum Allowable Downstream Concentration to be considered “Insignificant” =  $EWQ + (20\% \text{ REMAC})$

## Statistical Approach to Characterizing the Effluent for Determining Reasonable Potential

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

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

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

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

where  $\mu_y$  = mean of  $Y$   
 $\sigma_y$  = standard deviation of  $Y$   
 $Y = \ln[X]$   
 $z_p$  = the z-score for percentile “p”

For the 95<sup>th</sup> percentile,  $z_{95} = 1.645$ , so that

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

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

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<sup>1</sup> A different statistical approach is applied where the monitoring data set includes less than 10 samples.

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

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

For the deltalognormal, the pth percentile of X, referred to here as  $X_p^*$ , is given by

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

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

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

where  $\delta$  is the proportion of nondetects in the monitoring dataset.

$k$  = total number of dataset

$r$  = number of nondetect values in the dataset

$\delta = r/k$

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

**Example calculations of  $z_p^*$  for 95th percentile**

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



**Appendix E Summary of Estuarine Data from 2017 CDM Smith/Army Corp Report\* and 2017 EPA Field study**

**Summary of Estuarine Data from 2017 CDM Smith/Army Corp Report\***

Station ID	Station Name	6/25/2014 (dry weather)			8/10/2016 (wet/dry weather)		
		Salinity (ppt)	TN (mg/L)	Chl 'a' (ug/l)	Salinity (ppt)	TN (mg/L)	Chl 'a' (ug/l)
M026U	U/S Amesbury	0.55	1.44	19	0.29	1.67	17
M026D	D/S Amesbury	1.02	1.35	27	0.42	1.534	23
M028U	U/S Salisbury WWTP	15.75	0.78	24	12.75	1.296	16
M028D	D/S Salisbury WWTP	23.37	0.70	21	28.14	1.081	42
M029U	U/S Newburyport	18.015	0.76	30	25.55	0.497	14
M029D	D/S Newburyport	20.555	0.54	27	24.83	0.473	14
M027	Shellfish Bed/Newburyport Boatramp	30.505	0.47	4	29.36	0.442	4.3
M030	Shellfish Bed (Newburyport)	23.555	0.58	17	29.75	0.47	6.6

\*Merrimack River Watershed Assessment Study - Phase III Final Monitoring Data Report August 2017

**Summary of Estuarine Data from 2017 EPA Field Study\***

Station ID	Station Name	7/31/2017 (dry weather)			8/14/2017 (dry weather)		
		Salinity (ppt)	TN (mg/L)	Chl 'a' (µg/l)	Salinity (ppt)	TN (mg/L)	Chl 'a' (µg/l)
M018	Lawrence Community Boating, End of Dock in Lawrence, 1 Eaton Street	0.1	0.78	8	0.1	0.9	10
M025	Upstream of Merrimack Outfall	0.1	0.92	12	0.1	1.1	10
M026	Upstream of Amesbury Outfall	0.2	0.79	16	0.2	1	12
M028	Upstream of Newburyport	2.2	0.88	10	1	1.1	10
M029	Downstream of Newburyport Outfall	4.8	0.87	10	7	0.85	6
M030	Salisbury MA	15.3	0.73	7	2.8	1.2	11

Station ID	Station Name	8/29/2017 (dry weather)			9/14/2017 (wet/dry weather)		
		Salinity (ppt)	TN (mg/L)	Chl 'a' (µg/l)	Salinity (ppt)	TN (mg/L)	Chl 'a' (µg/l)
M018	Lawrence Community Boating, End of Dock in Lawrence, 1 Eaton Street	0.1	0.83	11	0.1	0.79	6
M025	Upstream of Merrimack Outfall	0.1	1.2	10	0.1	0.93	5
M026	Upstream of Amesbury Outfall	0.4	1	13	0.2	0.91	6
M028	Upstream of Newburyport	5.9	0.94	11	3.4	0.92	4
M029	Downstream of Newburyport Outfall	8.2	0.83	10	5.8	0.86	4

M030	Salisbury MA	15.3	0.62	8	9.6	0.73	4
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Station ID	Station Name	9/26/2017 (dry weather)			10/11/2017 (dry weather)		
		Salinity (ppt)	TN (mg/L)	Chl 'a' (µg/l)	Salinity (ppt)	TN (mg/L)	Chl 'a' (µg/l)
M018	Lawrence Community Boating, End of Dock in Lawrence, 1 Eaton Street	0.1	1.2	24	0.1	1.3	9
M025	Upstream of Merrimack Outfall	0.1	1.5	5	0.2	1.8	10
M026	Upstream of Amesbury Outfall	0.2	1.5	7	0.2	1.9	6
M028	Upstream of Newburyport	7.2	1.2	2	4.2	1.7	5
M029	Downstream of Newburyport Outfall	10.8	1.1	2	17.3	0.87	3
M030	Salisbury MA	17.9	0.74	2	9.8	1.3	3

NEW HAMPSHIRE DEPARTMENT OF  
ENVIRONMENTAL SERVICES  
WATER DIVISION  
P.O. BOX 95  
CONCORD, NEW HAMPSHIRE 03302-0095

U.S. ENVIRONMENTAL PROTECTION  
AGENCY-REGION 1  
OFFICE OF ECOSYSTEM PROTECTION  
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: March 29, 2019 – April 27, 2019

PERMIT NUMBER: **NH0100111**

PUBLIC NOTICE NUMBER: NH-003-19

NAME AND MAILING ADDRESS OF APPLICANT:

Hillsborough Water and Sewer Commission  
4 Church Street  
P.O. Box 2216  
Hillsborough, NH 03244

NAME AND LOCATION OF FACILITY WHERE DISCHARGE OCCURS:

Hillsborough Wastewater Control Facility  
40 Norton Drive  
Hillsborough, NH 03244

RECEIVING WATER: Contoocook 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 Hillsborough Wastewater Control Facility, which discharges treated domestic and industrial wastewater. Sludge from this facility is periodically removed from the lagoons and disposed of at an offsite landfill by a private contractor. 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](http://www.epa.gov/region1/npdes/draft_permits_listing_nh.html) or by contacting:

Michele Barden  
U.S. Environmental Protection Agency – Region 1  
5 Post Office Square, Suite 100 (OEP06-1)  
Boston, MA 02109-3912  
Telephone: (617) 918-1539  
Barden.Michele@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 April 27, 2019, 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 notice 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  
OFFICE OF ECOSYSTEM PROTECTION  
U.S. ENVIRONMENTAL PROTECTION  
AGENCY - REGION I