

**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 Seabrook, New Hampshire

is authorized to discharge from the facility located at

**Seabrook Wastewater Treatment Facility
Wright's Island, Route 286
Seabrook, NH 03874**

to receiving water named

**Gulf of Maine,
Atlantic Ocean**

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

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

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

This permit supersedes the permit issued on August 4, 2010.

This permit consists of **Part I** including the cover page(s), **Attachment A** (Marine Acute Toxicity Test Procedure and Protocol, July 2012), and **Part II** (NPDES Part II Standard Conditions, April 2018).

Signed this day of

KENNETH
MORAFF

Digitally signed by
KENNETH MORAFF
Date: 2021.02.04
14:42:33 -05'00'

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

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

PART I**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

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

Effluent Characteristic	Effluent Limitation			Monitoring Requirements ^{1,2,3}	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type ⁴
Rolling Average Effluent Flow ⁵	1.8 MGD ⁵	---	---	Continuous	Recorder
Effluent Flow ⁵	Report MGD	---	Report MGD	Continuous	Recorder
BOD ₅	30 mg/L 451 lb/day	45 mg/L 676 lb/day	50 mg/L 751 lb/day	2/week	Composite
BOD ₅ Removal	≥ 85 %	---	---	---	Calculate
TSS	30 mg/L 451 lb/day	45 mg/L 676 lb/day	50 mg/L 751 lb/day	2/week	Composite
TSS Removal	≥ 85 %	---	---	---	Calculate
pH Range ⁶	6.5 – 8.0 S.U.			1/day	Grab
Total Residual Chlorine ^{7,8}	240 µg/L	---	420 µg/L	2/day	Grab
<i>Enterococci</i> ^{7,8}	35/100 mL	---	104/100 mL	1/day	Grab
Fecal Coliform ^{7,8}	14/100 mL	---	---	3/week	Grab
Fecal Coliform ^{7,8,9} (% of samples > 43/100mL)	---	---	≤ 10 %	3/week	Grab

Effluent Characteristic	Effluent Limitation			Monitoring Requirements ^{1,2,3}	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type ⁴
Whole Effluent Toxicity (WET) Testing^{10,11}					
LC ₅₀	---	---	≥ 100 %	1/quarter	Composite
Ammonia Nitrogen	---	---	Report mg/L	1/quarter	Composite
Total Cadmium	---	---	Report mg/L	1/quarter	Composite
Total Copper	---	---	Report mg/L	1/quarter	Composite
Total Nickel	---	---	Report mg/L	1/quarter	Composite
Total Lead	---	---	Report mg/L	1/quarter	Composite
Total Zinc	---	---	Report mg/L	1/quarter	Composite
Total Organic Carbon	---	---	Report mg/L	1/quarter	Composite

Ambient Characteristic ¹²	Reporting Requirements			Monitoring Requirements ^{1,2,3}	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type ⁴
Ammonia Nitrogen	---	---	Report mg/L	1/quarter	Grab
Total Cadmium	---	---	Report mg/L	1/quarter	Grab
Total Copper	---	---	Report mg/L	1/quarter	Grab
Total Nickel	---	---	Report mg/L	1/quarter	Grab
Total Lead	---	---	Report mg/L	1/quarter	Grab
Total Zinc	---	---	Report mg/L	1/quarter	Grab
Total Organic Carbon	---	---	Report mg/L	1/quarter	Grab
pH ¹³	---	---	Report S.U.	1/quarter	Grab
Temperature ¹³	---	---	Report °C	1/quarter	Grab

Influent Characteristic	Reporting Requirements			Monitoring Requirements ^{1,2,3}	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type ⁴
BOD ₅	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 report the results to the Environmental Protection Agency Region 1 (EPA) and the State of any additional testing above that required herein, if testing is in accordance with 40 CFR Part 136.
2. In accordance with 40 CFR § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O, for the analysis of pollutants or pollutant parameters (except WET). A method is “sufficiently sensitive” when: 1) The method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or 2) The method has the lowest ML of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O for the measured pollutant or pollutant parameter. The term “minimum level” refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor.
3. When a parameter is not detected above the ML, the Permittee must report the data qualifier signifying less than the ML for that parameter (e.g., < 50 µg/L, if the ML for a parameter is 50 µg/L). For reporting an average based on a mix of values detected and not detected, assign a value of “0” to all non-detects for that reporting period and report the average of all the results.
4. A “grab” sample is an individual sample collected in a period of less than 15 minutes.

A “composite” sample is a composite of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportional to flow.
5. The limit is a rolling annual average, reported in million gallons per day (MGD), which will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows of the previous eleven months. Also report monthly average and maximum daily flow in MGD.

6. The pH shall be within the specified range at all times. The minimum and maximum pH sample measurement values for the month shall be reported in standard units (S.U.).
7. The Permittee shall minimize the use of chlorine while maintaining adequate bacterial control. Monitoring for total residual chlorine (TRC) is only required for discharges which have been previously chlorinated or which contain residual chlorine.

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 and in accordance with reporting requirements in Part I.G. Special Conditions and Part II Standard Conditions. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.

8. The monthly average limit for *enterococci* and Fecal Coliform are expressed as a geometric mean. *Enterococci* and Fecal Coliform monitoring shall be conducted concurrently with TRC monitoring, if TRC monitoring is required.
9. The Average Monthly values for Fecal Coliform shall be determined by calculating the geometric mean using daily sample results. As a Daily Maximum, not more than 10 percent of collected samples (over a monthly period) shall exceed a Most Probable Number (MPN) of 43 per 100 mL for the 5-tube decimal dilution test. Each month the percentage of collected samples that exceeds an MPN of 43 per 100 mL for the 5-tube decimal dilution test shall be reported at the Daily Maximum value. Furthermore, all Fecal Coliform data collected must be submitted with the monthly Discharge Monitoring Reports (DMRs).
10. The Permittee shall conduct acute toxicity tests (LC₅₀) in accordance with test procedures and protocols specified in **Attachment A** of this permit. LC₅₀ is defined in Part II.E. of this permit. The Permittee shall test the inland silverside minnow, *Menidia beryllina*, and the mysid shrimp, *Mysidopsis bahia*. Toxicity test samples shall be collected and tests completed during the same weeks each time of calendar quarters ending March 31st, June 30th, September 30th, and December 31st. The complete report for each toxicity test shall be submitted as an attachment to the DMR submittal which includes the results for that toxicity test.
11. 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.

12. 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 outside 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.
13. 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 Part 301 or Part 306 of the Clean Water Act if it were directly discharging those pollutants or in a primary industry category (see 40 CFR Part 122 Appendix A as amended) discharging process water; and
 - b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
 - c. For purposes of this paragraph, adequate notice shall include information on:
 - (1) The quantity and quality of effluent introduced into the POTW; and
 - (2) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

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

B. UNAUTHORIZED DISCHARGES

This permit authorizes discharges only from the outfall listed in Part I.A.1, in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit in accordance with Part II.D.1.e.(1) (24-hour reporting). See Part I.H below for reporting requirements.

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 shall 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

The Permittee shall update the 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

The Permittee shall continue to update and implement the Collection System O&M Plan it has previously submitted to EPA and the State. The Plan shall be available for review by federal, state and local agencies as requested. The Plan shall include:

- (1) A description of the collection system management goals, staffing, information management, and legal authorities;
- (2) A description of the collection system and the overall condition of the collection system including a list of all pump stations and a description of recent studies and construction activities; and
- (3) A preventive maintenance and monitoring program for the collection system
- (4) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;
- (5) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;

- (6) Identification of known and suspected overflows and back-ups, including manholes. A description of the cause of the identified overflows and back-ups, corrective actions taken, and a plan for addressing the overflows and back-ups consistent with the requirements of this permit;
- (7) A description of the Permittee's programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts;
- (8) An educational public outreach program for all aspects of I/I control, particularly private inflow; and
- (9) An Overflow Emergency Response Plan to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the permit.

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 monthly average flow exceeded 80 percent of the facility's 1.8 MGD design flow (1.44 MGD) for three consecutive months in the previous calendar year, or there have been capacity related overflows, the report shall include:
 - (1) Plans for further potential flow increases describing how the Permittee will maintain compliance with the flow limit and all other effluent limitations and conditions; and

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

D. ALTERNATE POWER SOURCE

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

E. INDUSTRIAL USERS

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

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

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

F. SLUDGE CONDITIONS

1. The Permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices, including EPA regulations promulgated at 40 CFR Part 503, which prescribe "Standards for the Use or Disposal of Sewage Sludge" pursuant to § 405(d) of the CWA, 33 U.S.C. § 1345(d).
2. If both state and federal requirements apply to the Permittee's sludge use and/or disposal practices, the Permittee shall comply with the more stringent of the applicable requirements.
3. The requirements and technical standards of 40 CFR Part 503 apply to the following sludge use or disposal practices:

- a. Land application - the use of sewage sludge to condition or fertilize the soil
 - b. Surface disposal - the placement of sewage sludge in a sludge only landfill
 - c. Sewage sludge incineration in a sludge only incinerator
4. The requirements of 40 CFR Part 503 do not apply to facilities which dispose of sludge in a municipal solid waste landfill. 40 CFR § 503.4. These requirements also do not apply to facilities which do not use or dispose of sewage sludge during the life of the permit but rather treat the sludge (e.g., lagoons, reed beds), or are otherwise excluded under 40 CFR § 503.6.
5. The 40 CFR Part 503 requirements include the following elements:
- a. General requirements
 - b. Pollutant limitations
 - c. Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
 - d. Management practices
 - e. Record keeping
 - f. Monitoring
 - g. Reporting

Which of the 40 CFR Part 503 requirements apply to the Permittee will depend upon the use or disposal practice followed and upon the quality of material produced by a facility. The EPA Region 1 Guidance document, "EPA Region 1 - NPDES Permit Sludge Compliance Guidance" (November 4, 1999), may be used by the Permittee to assist it in determining the applicable requirements.²

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

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

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

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

7. Under 40 CFR § 503.9(r), the Permittee is a “person who prepares sewage sludge” because it “is ... the person who generates sewage sludge during the treatment of domestic sewage in a treatment works” If the Permittee contracts with *another* “person who prepares sewage sludge” under 40 CFR § 503.9(r) – i.e., with “a person who derives a material from sewage sludge” – for use or disposal of the sludge, then compliance with Part 503 requirements is the responsibility of the contractor engaged for that purpose. If the Permittee does not engage a “person who prepares sewage sludge,” as defined in 40 CFR § 503.9(r), for use or disposal, then the Permittee remains responsible to ensure that the applicable requirements in Part 503 are met. 40 CFR § 503.7. If the ultimate use or disposal method is land application, the Permittee is responsible for providing the person receiving the sludge with notice and necessary information to comply with the requirements of 40 CFR § 503 Subpart B.
8. The Permittee shall submit an annual report containing the information specified in the 40 CFR Part 503 requirements (§ 503.18 (land application), § 503.28 (surface disposal), or § 503.48 (incineration)) by **February 19** (*see also* “EPA Region 1 - NPDES Permit Sludge Compliance Guidance”). Reports shall be submitted electronically using EPA’s Electronic Reporting tool (“NeT”) (*see* “Reporting Requirements” section below).
9. Compliance with the requirements of this permit or 40 CFR Part 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. Requirements for POTWs with Effluent Diffusers

- a. Effluent diffusers shall be maintained as necessary to ensure proper operation. Proper operation means that the plumes from each port will be balanced relative to each other and that they all have unobstructed flow. Maintenance may include dredging in the vicinity of the diffuser, clean out of solids in the diffuser header pipe, removal of debris and repair/replacement of riser ports and pinch valves.
- b. Any necessary maintenance dredging must be performed only after receiving all necessary permits from the NHDES Wetlands Bureau and other appropriate agencies.
- c. To determine if maintenance will be required, the Permittee shall have a licensed diver or licensed marine contractor inspect and videotape the operation of the diffuser. The inspections and videotaping shall be performed in accordance with the following schedule:
 - i. Every year if no pinch valves have been installed on the riser ports; or
 - ii. Every 2 years if pinch valves have been installed on the riser ports.
- d. The video of the diffuser inspection and a copy of a report summarizing the results of the inspection shall be submitted to EPA and NHDES-WD on a USB

drive within 60 days of each inspection. A schedule for cleaning, repairs, or other necessary maintenance shall be included in the report if the inspection indicates that it is necessary. Necessary cleaning, repairs, or other maintenance should be documented with a photo or video taken after the action is completed.

2. NHDES Shellfish Notification Procedures

The Permittee shall immediately notify the Shellfish Section of NHDES-WD of possible high bacteria/virus loading events from the facility or its sewer collection system. Such events include:

- a. Any lapse or interruption of normal operation of the POTW disinfection system, or other event that results in discharge of sewage from the POTW or sewer infrastructure (pump stations, sewer lines, manholes, etc.) that has not undergone full disinfection as specified in the NPDES permit;
- b. Average daily flows in excess of the POTW's average daily design flow of 1.8 MGD; and
- c. Daily post-disinfection effluent samples of 28 organisms per 100 mL or greater. Notification shall also be made for instances where NPDES-required bacteria sampling is not completed, or where the results of such sampling are invalid. This is a state certification requirement.

Notification shall be made using the program's cell phone number. If Shellfish Program staff are not available to answer the phone, leave a message describing the issue or situation and provide your contact information, including phone number. Then, call the Shellfish Program's pager and enter a call back number. Upon initial notification of a possible high bacteria/virus loading event, Shellfish Program staff will determine the most suitable interval for continued notification and updates on an event-by-event basis.

NHDES - Shellfish Program
Cell phone: 603-568-6741
Pager: 603-771-9826

H. REPORTING REQUIREMENTS

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

1. Submittal of DMRs Using NetDMR

The Permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and the State no later than the 15th day of the month electronically using NetDMR. When the Permittee submits DMRs using NetDMR, it is not required to

submit hard copies of DMRs to EPA or the State. NetDMR is accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>.

2. Submittal of Reports as NetDMR Attachments

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

3. Submittal of Biosolids/Sewage Sludge Reports

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

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

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

- (1) Transfer of permit notice;
- (2) Request for changes in sampling location;
- (3) Report on unacceptable dilution water / request for alternative dilution water for WET testing.
- (4) Report of new industrial user commencing discharge.
- (5) Report received from existing industrial user.

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

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

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

- (1) Prior to 21 December 2020, written notifications required under Part II.B.4.c, for bypasses, and Part II.D.1.e, for sanitary sewer overflows (SSOs). Starting

on 21 December 2020, such notifications must be done electronically using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>.

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

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

6. State Reporting

Unless otherwise specified in this permit or by the State, duplicate signed copies of all reports, information, requests or notifications described in this permit, including the reports, information, requests or notifications described in Parts I.H.3 through I.H.5 shall also be submitted to the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) electronically to the Permittee's assigned NPDES inspector at NHDES-WD or as a hardcopy to the following addresses:

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 ECAD at 617-918-1510
and
NHDES Assigned NPDES Inspector at 603-271-1493

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 of, 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 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. 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 CFR § 133.102(c).
5. Pursuant to New Hampshire Code of Administrative Rules, Env-Wq 703.07(a):
 - a. Any person proposing to construct or modify any of the following shall submit an application for a sewer connection permit to the department:
 - (1) Any extension of a collector or interceptor, whether public or private, regardless of flow;
 - (2) Any wastewater connection or other discharge in excess of 5,000 gpd;
 - (3) Any wastewater connection or other discharge to a WWTP operating in excess of 80 percent design flow capacity or design loading capacity based on actual average flow or loading for 3 consecutive months;
 - (4) Any industrial wastewater connection or change in existing discharge of industrial wastewater, regardless of quality or quantity;
 - (5) Any sewage pumping station greater than 50 gpm or serving more than one building; or
 - (6) Any proposed sewer that serves more than one building or that requires a manhole at the connection.

6. For each new or increased discharge of industrial waste to the POTW, the Permittee shall submit, in accordance with Env-Wq 305.10(a) an “Industrial Wastewater Discharge Request.”
7. Pursuant to Env-Wq 305.15(d) and 305.16(f), the Permittee shall not allocate or accept for treatment more than 90 percent of the headworks loading limits of the facility.
8. Pursuant to Env-Wq 305.21, at a frequency no less than every five years, the Permittee shall submit to NHDES:
 - a. A copy of its current sewer use ordinance if it has been revised without department approval subsequent to any previous submittal to the department or a certification that no changes have been made.
 - b. A current list of all significant indirect dischargers to the POTW. At a minimum, the list shall include for each significant indirect discharger, its name and address, the name and daytime telephone number of a contact person, products manufactured, industrial processes used, existing pretreatment processes, and discharge permit status.
 - c. A list of all permitted indirect dischargers; and
 - d. A certification that the municipality is strictly enforcing its sewer use ordinance and all discharge permits it has issued.
9. When the effluent discharged for a period of three (3) consecutive months exceeds 80 percent of the 1.8 MGD design flow (1.44 MGD) or design loading capacity, the Permittee shall submit to the permitting authorities a projection of flows and loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans. Before the design flow will be reached, or whenever treatment necessary to achieve permit limits cannot be assured, the Permittee may be required to submit plans for facility improvements.
10. Fecal Coliform - Daily post-disinfection effluent grab samples shall be collected and analyzed for fecal coliform using an EPA-approved analytical method (published in 40 CFR Part 136) that meets the timeliness requirements of the NHDES Shellfish Program. Results shall be reported to NHDES each month in accordance with state reporting requirements in Part I.H.6.

ATTACHMENT A
MARINE 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:

- **2007.0 - Mysid Shrimp (Americamysis bahia) definitive 48 hour test.**
- **2006.0 - Inland Silverside (Menidia beryllina) definitive 48 hour test.**

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

II. METHODS

The permittee shall use the most recent 40 CFR Part 136 methods. Whole Effluent Toxicity (WET) Test Methods and guidance may be found at:

<http://water.epa.gov/scitech/methods/cwa/wet/index.cfm#methods>

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 and receiving water sample shall be collected. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any holding time extension. Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine¹ (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate

¹ For this protocol, total residual chlorine is synonymous with total residual oxidants.
(July 2012)

prior to sample use for toxicity testing. If performed on site the results should be included on the chain of custody (COC) presented to WET laboratory.

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 mg/L chlorine. If dechlorination is necessary, a thiosulfate control consisting of the maximum concentration of thiosulfate used to dechlorinate the sample in the toxicity test control water must also be run in the WET test.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol. Grab samples must be used for pH, temperature, and total residual chlorine (as per 40 CFR Part 122.21).

All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6° C.

IV. DILUTION WATER

Samples of receiving water must be collected from a reasonably accessible location in the receiving water body immediately upstream of the permitted discharge's zone of influence. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2, Test Results & Permit Limits.

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

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

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

If the receiving water is found to be, or suspected to be toxic or unreliable, ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is

species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first case is when repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use by the permittee and toxicity testing laboratory. The second is when two of the most recent documented incidents of unacceptable site dilution water toxicity require ADW use in future WET testing.

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

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

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency, Region 1
Five Post Office Square, Suite 100
Mail Code OEP06-5
Boston, MA 02109-3912

and

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

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

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

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

EPA Region 1 requires tests be performed using four replicates of each control and effluent concentration because the non-parametric statistical tests cannot be used with data from fewer replicates. The following tables summarize the accepted Americamysis and Menidia toxicity test conditions and test acceptability criteria:

EPA NEW ENGLAND EFFLUENT TOXICITY TEST CONDITIONS FOR THE MYSID, AMERICAMYSIS BAHIA 48 HOUR TEST¹

1. Test type	48hr Static, non-renewal
2. Salinity	25ppt \pm 10 percent for all dilutions by adding dry ocean salts
3. Temperature (°C)	20°C \pm 1°C or 25°C \pm 1°C, temperature must not deviate by more than 3°C during test
4. Light quality	Ambient laboratory illumination
5. Photoperiod	16 hour light, 8 hour dark
6. Test chamber size	250 ml (minimum)
7. Test solution volume	200 ml/replicate (minimum)
8. Age of test organisms	1-5 days, <u>\leq 24 hours age range</u>
9. No. Mysids per test chamber	10
10. No. of replicate test chambers per treatment	4
11. Total no. Mysids per test concentration	40
12. Feeding regime	Light feeding using concentrated <u>Artemia</u> naupli while holding prior to initiating the test
13. Aeration ²	None
14. Dilution water	5-30 ppt, +/- 10%; Natural seawater, or deionized water mixed with artificial sea salts
15. Dilution factor	\geq 0.5
16. Number of dilutions ³	5 plus a control. An additional dilution at the permitted effluent concentration (%)

	effluent) is required if it is not included in the dilution series.
17. Effect measured	Mortality - no movement of body appendages on gentle prodding
18. Test acceptability	90% or greater survival of test organisms in control solution
19. Sampling requirements	For on-site tests, samples are used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must be first used within 36 hours of collection.
20. Sample volume required	Minimum 1 liter for effluents and 2 liters for receiving waters

Footnotes:

- ¹ Adapted from EPA 821-R-02-012.
- ² If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks are recommended.
- ³ When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

EPA NEW ENGLAND TOXICITY TEST CONDITIONS FOR THE INLAND SILVERSIDE, MENIDIA BERYLLINA 48 HOUR TEST¹

1. Test Type	48 hr Static, non-renewal
2. Salinity	25 ppt \pm 10 % by adding dry ocean salts
3. Temperature	20°C \pm 1°C or 25°C \pm 1°C, temperature must not deviate by more than 3°C during test
4. Light Quality	Ambient laboratory illumination
5. Photoperiod	16 hr light, 8 hr dark
6. Size of test vessel	250 mL (minimum)
7. Volume of test solution	200 mL/replicate (minimum)
8. Age of fish	9-14 days; 24 hr age range
9. No. fish per chamber	10 (not to exceed loading limits)
10. No. of replicate test vessels per treatment	4
11. Total no. organisms per concentration	40
12. Feeding regime	Light feeding using concentrated <u>Artemia</u> nauplii while holding prior to initiating the test
13. Aeration ²	None
14. Dilution water	5-32 ppt, +/- 10% ; Natural seawater, or deionized water mixed with artificial sea salts.
15. Dilution factor	≥ 0.5
16. Number of dilutions ³	5 plus a control. An additional dilution at the permitted concentration (% effluent) is required if it is not included in the dilution series.
17. Effect measured	Mortality-no movement on gentle prodding.

18. Test acceptability	90% or greater survival of test organisms in control solution.
19. Sampling requirements	For on-site tests, samples must be used within 24 hours of the time they are removed from the sampling device. Off-site test samples must be used within 36 hours of collection.
20. Sample volume required	Minimum 1 liter for effluents and 2 liters for receiving waters.

Footnotes:

- ¹ Adapted from EPA 821-R-02-012.
- ² If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks recommended.
- ³ When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

V.1. Test Acceptability Criteria

If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.

V.2. Use of Reference Toxicity Testing

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

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

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

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

V.2.a. Use of Concurrent Reference Toxicity Testing

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall slightly outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall well outside the established **upper** control limits i.e. ≥ 3 standard deviations for IC25s and LC50 values and \geq two concentration intervals for NOECs or NOAECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

VI. CHEMICAL ANALYSIS

At the beginning of the static acute test, pH, salinity, and temperature must be measured at the beginning and end of each 24 hour period in each dilution and in the controls. The following chemical analyses shall be performed for each sampling event.

<u>Parameter</u>	<u>Effluent</u>	<u>Diluent</u>	<u>Minimum Level for effluent^{*1} (mg/L)</u>
pH	x	x	---
Salinity	x	x	ppt(o/oo)
Total Residual Chlorine ^{*2}	x	x	0.02
Total Solids and Suspended Solids	x	x	---
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
<u>Total Metals</u>			
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

Superscript:

^{*1} These are the minimum levels for effluent (fresh water) samples. Tests on diluents (marine waters) shall be conducted using the Part 136 methods that yield the lowest MLs.

^{*2} Either of the following methods from the 18th Edition of the APHA Standard Methods for the Examination of Water and Wastewater must be used for these analyses:

- Method 4500-Cl E Low Level Amperometric Titration (the preferred method);
- Method 4500-CL G DPD Photometric Method.

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration

An estimate of the concentration of effluent or toxicant that is lethal to 50% of the test organisms during the time prescribed by the test method.

Methods of Estimation:

- Probit Method
- Spearman-Kärber
- Trimmed Spearman-Kärber
- Graphical

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

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

Please note: The NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs) are available on EPA's website at

<http://www.epa.gov/NE/enforcementandassistance/dmr.html>

In addition to the summary sheets the report must include:

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

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

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¹ 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

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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

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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

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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

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- (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

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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

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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.

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- 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

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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

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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

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“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

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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

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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.

LC₅₀ means the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The *LC₅₀* = 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

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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).

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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

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(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

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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

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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.

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

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

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

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

2. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl ₂	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)
TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont.	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M ³ /day	Cubic meters per day
DO	Dissolved oxygen

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

**RESPONSE TO COMMENTS
NPDES PERMIT NO. NH0101303
SEABROOK WASTEWATER TREATMENT FACILITY
SEABROOK, NEW HAMPSHIRE**

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

In accordance with the provisions of 40 CFR §124.17, this document presents EPA's responses to comments received on the Draft NPDES Permit # NH0101303 ("Draft Permit"). The Response to Comments explains and supports EPA's determinations that form the basis of the Final Permit. From June 23, 2020 through July 22, 2020 and then extended to August 6, 2020, EPA solicited public comments on the Draft Permit.

EPA received comments from:

- Thomas O'Donovan, P.E., Director, Water Division, NHDES, dated August 5, 2020
- William Manzi, III, Town Manager, Town of Seabrook, dated August 5, 2020
- Betsy Reilly, Ph.D., Director, Environmental Quality Department, Massachusetts Water Resources Authority, dated August 6, 2020
- Patsy Root, Regulatory Affairs Manager, IDEXX Water, dated July 20, 2020
- Kirk Cram, Laboratory Director, Enthalpy Analytical, LLC, dated July 22, 2020
- Christopher M. Perkins, PE, Chair NHWPCA Permit Committee, dated July 21, 2020

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

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

A copy of the Final Permit may be also obtained by writing or calling Michele Barden, USEPA, 5 Post Office Square, Suite 100 (Mail Code: 06-4), Boston, MA 02109-3912; Telephone: (617) 918-1539; Email barden.michele@epa.gov.

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Appendix A: Email between NH DES staff regarding CORMIX on January 9, 2020

Appendix B: Email between CORMIX Support Staff and NH DES on January 15, 2021

I. Summary of Changes to the Final Permit

1. The fecal coliform sampling frequency required in Part I.A.1 of the permit has been reduced from daily to three times per week. See Response 1.
2. Footnote 9 has been revised to: "The Average Monthly values for Fecal Coliform shall be determined by calculating the geometric mean using daily sample results. As a Daily Maximum, not more than 10 percent of collected samples (over a monthly period) shall exceed a Most Probable Number (MPN) of 43 per 100 mL for the 5-tube decimal dilution test. Each month the percentage of collected samples that exceeds an MPN of 43 per 100 mL for the 5-tube decimal dilution test shall be reported at the Daily Maximum value. Furthermore, all Fecal Coliform data collected must be submitted with the monthly Discharge Monitoring Reports (DMRs)." See Response 1.
3. A new daily monitoring requirement for fecal coliform using an EPA method that meets the timeliness requirements of the NHDES Shellfish Program has been added to the state 401 certification conditions in Part I.I. See Response 1.
4. Part I.G.2.c of the Final Permit has been changed to, "Daily post-disinfection effluent samples of either 28 organisms per 100 mL or greater. Notification shall also be made for instances where NPDES-required bacteria sampling is not completed, or where the results of such sampling are invalid. This is a state certification requirement." This requirement differs from the Draft Permit insofar as daily post-disinfection effluent samples need to

be at least 28 organisms per 100 mL, instead of 31 CFU per 100 mL or greater. See Responses 2 and 5.

II. Responses to Comments

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

A. Comments from Thomas, O'Donovan, P.E., Director, Water Division, NHDES, dated August 5, 2020

Comment 1

The above referenced draft NPDES permit includes permit limits for fecal coliform that are based on the methods approved by the National Shellfish Sanitation Program (NSSP) Manual of Operation for testing of fecal coliform, to the exclusion of the use of any methods not included in the NSSP. These limits are based on EPA's interpretation of New Hampshire's water quality standards, and NHDES disagrees with this interpretation.

State law requires NHDES to follow the NSSP in classifying tidal waters used for the growing or taking of shellfish. RSA 485-A:8 and Appendix E of New Hampshire Code of Administrative Rules Env-Wq 1700 state that, "Those tidal waters used for growing or taking of shellfish for human consumption shall, in addition to the foregoing requirements, be in accordance with the criteria recommended under the National Shellfish Program Manual of Operation, United States Department of Food and Drug Administration." In addition, New Hampshire Code of Administrative Rules Env-Wq 1703.06 states, "... the bacteria criteria shall be applied at the end of a wastewater treatment facility's discharge pipe." EPA has incorrectly interpreted these requirements from the New Hampshire water quality standards in combination to require that wastewater treatment facilities in New Hampshire sample their effluent in accordance with NSSP approved methods.

The NSSP *Model Ordinance Chapter IV, @.03 Growing Area Classification* requires that, "An area classified as prohibited shall be established adjacent to each sewage treatment plant outfall." Per NSSP *Section I, Definitions*, "prohibited" is defined as, "a classification used to identify a growing area where the harvest of shellstock for any purpose, except depletion, gathering of seed or nursery culture for aquaculture, is not permitted."

As the area surrounding a wastewater treatment facility's outfall is prohibited from shellfishing by the NSSP, the water quality criteria in RSA 485-A:8 and New Hampshire Code of Administrative Rules Env-Wq 1700 for "tidal waters used for the growing or taking of shellfish" do not apply to the waters immediately adjacent to the wastewater facility outfall, within the designated Prohibited zone. Rather, the water quality criteria are applicable to the receiving waters outside of the Prohibited zone. And while the monitoring of bacteria in WWTF effluent is not required in order to meet the New Hampshire water quality standards for the growing or taking of shellfish since the NSSP classifies the water adjacent to a wastewater treatment facility outfall as prohibited for shellfishing, it is required in order to determine the Prohibited zone for a wastewater treatment facility per the NSSP. This classification is solely the responsibility of the state.

As explained in *NSSP Model Ordinance Chapter IV, @.03 Growing Area Classification* “The determination of the size of the area to be classified as prohibited adjacent to each outfall shall include...the performance of the wastewater treatment plant and the microbiological quality of the effluent” and “The wastewater’s dispersion and dilution, and the time of waste transport to the area where shellstock may be harvested.” As such, the prohibited zones surrounding a wastewater treatment facility are designed with sufficient dilution as to negate the effects of wastewater once it reaches the edge of the Prohibited zone if the performance of the wastewater treatment plant results in adequate microbiological quality of the effluent.

NHDES, as well as EPA in 40 CFR 136.1, has determined that it is appropriate to monitor the performance of a wastewater treatment facility and the microbiological quality of the effluent using methods listed in 40 CFR 136.3. The United States Food and Drug Administration (FDA), via a recent Interpretation and email correspondence, agrees with this approach and explicitly states that NPDES effluent testing, used to evaluate the performance of a wastewater treatment facility, does not need to utilize NSSP approved laboratory methods. Therefore, bacteria testing for wastewater treatment facility effluent should not be limited to NSSP approved methods where it discharges into a Prohibited zone.

NHDES would also like to note that of the four NSSP approved methods that EPA lists in the permit’s fact sheet on page 19 as acceptable for use in evaluating fecal coliform in the facility’s effluent, only one of the methods, the 5-tube decimal dilution test, is approved for use under 40 CFR 136.3. EPA’s interpretation that an NSSP approved method must be used by New Hampshire wastewater treatment facilities to monitor for fecal coliform, and the requirement for facilities to use approved methods under 40 CFR 136.3 for NPDES compliance, appears to limit all facilities to the use of a 5-tube decimal dilution test.

Due to EPA’s incorrect interpretation of NH water quality standards, as noted above, the only method available to facilities would be the 5-tube decimal dilution test. Restricting the test methods for fecal coliform to one method, and the 5-tube decimal dilution test in particular, could create issues with ability of facilities to consistently monitor for fecal coliform and provide timely notifications to the NHDES shellfish program if the discharge from a wastewater treatment facility has a bacteria concentration of concern. Currently, only one lab in the state of NH, the NH DHHS lab, is set up to accommodate the 5-tube decimal dilution test. With nearly all of the seacoast facilities performing daily monitoring for fecal coliform, and only one lab currently able to accommodate the EPA’s proposed required test method, this has the potential to delay or prohibit testing. In addition, depending on the medium used for the 5-tube decimal dilution test, the incubation period could be multiple days, as opposed to the 18-22-hour incubation period for the Colilert-18 method. Even if more labs are set up to accommodate this method, the level of staff training, equipment needed, and incubation times will limit the number of labs for which this is feasible. Further, limiting the approved test methods to a single method could delay or prevent testing, should any of the equipment or reagents become unavailable.

NH facilities could choose to perform this one test in-house, however history has shown that the majority of the impacted facilities chose to go with the simpler Colilert-18 method many years ago after struggling with having the in-house expertise with the more complex methods, and

their own concern with having consistently accurate results. The Colilert-18 method, now included in 40 CFR Part 136.3, has been successfully used by 11 Seacoast facilities for up to eight years for NPDES compliance.

Most important, the NHDES shellfish program relies on timely and consistent information from the seacoast wastewater treatment facilities in order to quickly determine whether further testing of the receiving waters outside of the Prohibited zone is required by NHDES, and shellfish areas need to be closed for harvest. This is important for the health and safety of those who consume shellfish harvested from the NH seacoast. Should this information be delayed or prevented due to unnecessary restrictions on which test methods can be used, it could result in longer identification and correction periods for violations of NH's water quality standards, and create health and safety concerns due to delayed closures of shellfish harvest areas. EPA's incorrect interpretation of New Hampshire rules and statutes could have direct negative consequences on the health of residents and visitors to the state and consumers of shellfish.

Response 1

EPA maintains its interpretation that current NH statutes, regulations and policy documents require effluent limits for facilities that discharge to tidal waters used for the growing or taking of shellfish that assure compliance with the bacteria criteria recommended in the NSSP.

The NH Statute at Title 50, Chapter 485A, Section 485-A:8.II, states Class B waters "shall be considered as being acceptable for fishing, swimming and other recreational purposes and, after adequate treatment, for use as water supplies." Additionally, 485-A:8.V requires that "Those tidal waters used for growing or taking of shellfish for human consumption shall, in addition to the foregoing requirements, be in accordance with the criteria recommended under the National Shellfish Program Manual of Operation, United States Department of Food and Drug Administration."

NH Regulations at Env-Wq 1703.01 - Water Use Classifications; Designated Uses state:

- (a) All surface waters shall be classified as provided in RSA 485-A:8, based on the standards established therein for class A and class B waters. Each classification shall identify the most sensitive use it is intended to protect.
- (b) All surface waters shall be restored to meet the water quality criteria for their designated classification including existing and designated uses, and to maintain the chemical, physical, and biological integrity of surface waters.
- (c) All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters.
- (d) Unless high or low flows are caused by naturally-occurring conditions, surface water quantity shall be maintained at levels adequate to protect existing and designated uses.

Env-Wq 1703.06 requires

- (a) Uses and criteria associated with bacteria shall be as set forth in RSA 485-A:8, I, II, and V.

- (b) Subject to (c), below, the bacteria criteria shall be applied at the end of a wastewater treatment facility's discharge pipe.
- (c) For any combined sewer overflow that discharges into non-tidal surface waters, a bacteria criteria of 1,000 *Escherichia coli* per 100 milliliters shall apply at the end of the combined sewer overflow's discharge pipe.

EPA finds that the language in the NH Water Quality Standards (WQS) at Chapter 485A, Section 485-A:8, V is specific that the criteria in the NSSP Manual must meet “in addition to the foregoing requirements” that “tidal waters for swimming purposes shall contain not more than either a geometric mean based on at least 3 samples obtained over a 60-day period of 35 enterococci per 100 milliliters, or 104 enterococci per 100 milliliters in any one sample, unless naturally occurring.” The effluent limits in the Draft Permit were established to address these requirements as it had been in the 2010 Permit and is consistent with NHDES policy.¹

EPA recognizes that FDA requires a prohibited zone around NPDES outfalls, which precludes shellfishing. However, regardless of the FDA prohibited zone around the NPDES outfall, the WQS found at 485-A:8 and Env-Wq 1700 apply to waters immediately adjacent to the POTW outfall to protect the designated uses of the receiving water. The WQS specifically require that “bacteria criteria shall be applied at the end of the wastewater treatment facility's discharge pipe.” However, in the future NHDES may propose to remove or modify the designated use (as long as it is not an existing use), i.e. shellfishing, within the designated prohibited zone, after justifying that change through a Use Attainability Analysis (UAA) process (*See* Env-Wq 1709.01 and 40 CFR 131.10(g)(1)-(6)). Until a UAA is completed and approved by EPA, shellfishing remains a designated use in the receiving water and the WQS apply at the end of the discharge pipe.

The NH WQS include two different bacteria criteria for tidal waters based on designated use: the enterococci criteria protect the swimming use and NSSP bacteria criteria protect the shellfishing use. The criteria for the shellfishing use are included in the NH WQS by reference to the National Shellfish Program Manual of Operation, entitled, “National Shellfish Sanitation Program² (NSSP): Guide for the Control of Molluscan Shellfish, 2017 Version.”

The NSSP requires:

E. Standard for the Approved Classification of Growing Areas when Evaluated for Adverse Pollution Conditions.

¹ Stergios K. Spanos, NHDES to George Berlandi, NHDES, October 23, 2001, RE: Wallis Sands State Park Wastewater Treatment Facility NPDES Permit & DES Policy on Bacteria Limitations in NPDES Permits.

² U.S. Food and Drug Administration, 2017, National Shellfish Sanitation Program (NSSP): Guide for the Control of Molluscan Shellfish, 2017 Revision, <https://www.fda.gov/media/117080/download>; the 2019 Revision of the NSSP is now available with the same bacteria criteria, <https://www.fda.gov/media/143238/download>

- (1) Water Quality. The bacteriological quality of every station in the growing area shall meet the fecal coliform standard in Section E. (2).
- (2) Fecal Coliform Standard for Adverse Pollution Conditions. The fecal coliform median or geometric mean MPN or MF (mTEC) of the water sample results shall not exceed fourteen (14) per 100 ml, and not more than ten (10) percent of the samples shall exceed an MPN or MF (mTEC) of:
 - (a) 43 MPN per 100 ml for a five-tube decimal dilution test;
 - (b) 49 MPN per 100 ml for a three-tube decimal dilution test;
 - (c) 28 MPN per 100 ml for a twelve-tube single dilution test; or
 - (d) 31 CFU per 100 ml for a MF (mTEC) test.

Note that while the geometric MPN or MF for each method above is the same, 14, the 10% statistical threshold value which the MPN or MF may not exceed is different depending on the method used.

EPA recognizes the DES's concern with turn-around time for the 5-tube method, which does not meet the turnaround time necessary for the NHDES shellfish program to make shellfish harvesting decisions. However, the purpose of the NPDES permit is to meet the requirements of the CWA, which requires adherence to NH WQS. EPA finds no sound justification for an effluent limit using methods other than those provided by the NSSP. NSSP criteria provide no median, mean or 10% statistical threshold value for the Colilert-18 method, so there would be no scientific basis for an effluent limit defined by that method. EPA is not aware of any NSSP criteria updates in progress or forthcoming that include criteria using the Colilert-18 method.³ EPA also notes that FDA has expressed concerns about the suitability of the Colilert test in this context. "The Colilert test is not appropriate for use in the context of NSSP standards as they relate to classification and/or opening an area after a pollution event, as it is not an NSSP approved method. In the wake of hurricane Katrina in 2005, a state wanted to get their sampling program up and running but their laboratories were out of commission. As their laboratories couldn't accommodate the volume of samples using A-1, they tried Colilert and found that most/all of the samples were positive strongly suggesting it wasn't appropriate for this purpose."⁴

However, based on the concerns raised in this comment and the state's 401 water quality certification letter,⁵ a new daily fecal coliform monitoring requirement has been added as a New Hampshire 401 certification condition that allows the use of any EPA-approved analytical method that meets the timeliness requirements of the NHDES Shellfish Program. See Part I.I.11 of the Final Permit. In addition, the frequency of fecal coliform monitoring using the 5-tube method in Part I.A.1 of the permit has been reduced from daily to 3 times per week.

³ Email. Joel Hansel, EPA to Dan Arsenault, EPA, May 27, 2020, RE: Questions about NSSP Testing – Use of Colilert-18 (IDEXX)

⁴ Email Chain. Chris Nash, NHDES to Amy Fitzpatrick, FDA, March 31, 2020, RE: question on NSSP micro standards and wastewater NPDES testing

⁵ Letter. Thomas O'Donovan, NHDES to Ellen Weitzler, EPA, August 24, 2020, RE: Seabrook Wastewater Treatment Facility, Certification of NPDES Permit No. NH0101303.

B. Comments from William Manzi, III, Town Manager, Town of Seabrook, dated August 5, 2020

Comment 2

1. NPDES Permit PART I A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.; Footnote 9

Current language:

The Average Monthly value for Fecal Coliform shall be determined by calculating the geometric mean using the daily sample results. As a Daily Maximum, not more than 10 percent of the collected samples (over a monthly period) shall exceed a 31 Colony Forming Units (CFU) per 100ml for a MF (mTEC) test. Each month the percentage of collected samples that exceeds 31 CFU per 100 ml for the MF (mTEC) test shall be reported at the Daily Maximum value. Furthermore, all Fecal Coliform data collected must be submitted with the monthly Discharge Monitoring Reports (DMRs).

Revise language as follows:

The Average Monthly value for Fecal Coliform shall be determined by calculating the geometric mean using the daily sample results. As a Daily Maximum, not more than 10 percent of the collected samples (over a monthly period) shall exceed a 31 ~~Colony Forming Units (CFU)~~ **organisms** per 100 mL for a MF (mTEC) test. Each month the percentage of collected samples that exceeds 31 **organisms** CFU per 100 ml for the MF (mTEC) test shall be reported at the Daily Maximum value. Furthermore, all Fecal Coliform data collected must be submitted with the monthly Discharge Monitoring Reports (DMRs).

Rationale for Change:

- a) Removal of CFU as the unit of measure allows the use of methods that report in different units accepted by US EPA for compliance with Clean Water Act testing. Removing CFU and stating 'organisms' will be less confusing to utilities and laboratories as they decide on using either a CFU or MPN reporting test method.
- b) Remove mTEC as sole analytical test method. Presumably this requirement is based on the NH RSA 485-A:8. V and National Shellfish Sanitation Program (NSSP) Manual of Operation (2017). EPA appears to have interpreted the NSSP specified testing methods as being exclusive and applicable to discharges to these waters. Based on our assessment, both NH RSA 485 and the NSSP Manual are clear in stating that the standards and guidelines within those documents are developed for application on the **receiving water bodies** (defined as a "tidal waters" and "shellstock growing areas"), and are not specifically specified for testing of discharges to the receiving waters. Therefore, the NSSP bacterial testing methods should not be mandated for testing wastewater effluent. The Colilert-18 (IDEXX) method for fecal coliform testing in wastewater effluent has been approved under 40 CFR Part 136 under the Clean Water Act since 2017 and has been recognized as an equivalent coliform testing method by EPA. The most recent revision of the NSSP in 2017 likely

predates the EPA approval of the Colilert-18 (IDEXX), which may explain why this method is not included in the NSSP. The Town respectfully requests that Colilert-18 (IDEXX) method remain an accepted method for testing Fecal coliform bacteria for wastewater effluent. While the Town of Seabrook does not currently use the Colilert-18 (IDEXX) method for fecal coliform testing it may be considered in the future.

- c) It is unnecessary to specify the fecal coliform testing method within the permit because "... NPDES permits require that the approved analytical procedures found in 40 C.F.R Part 136 be used for sampling and analysis unless other procedures are explicitly specified ..." (Fact Sheet .Section 2.4.1. Monitoring Requirements)

Response 2

Please see Response 1.

EPA has revised that language in Footnote 9 in the Final Permit to reflect the language in the 2010 Permit. The mTEC method has been removed and the 5-tube decimal dilution test method has been reinstated.

EPA recognizes that Colilert-18 is an approved 40 CFR Part 136 method for fecal coliform bacteria testing in wastewater. However, the WQS which are applicable to the Seabrook discharge require that fecal coliform bacteria be in accordance with the criteria recommended under the NSSP. Colilert-18 has not been approved by FDA for use under the NSSP; and therefore, no criteria have been set for Colilert-18 in the NSSP. There have been numerous inquiries into FDA about the use of Colilert-18 but again, there is nothing before the Interstate Shellfish Sanitation Conference, the group authorized to make changes to the NSSP, to change the NSSP Guide at this time.

Contrary to the Town's comment, EPA is required to specify the analytical method in the permit because the criteria in the NSSP are different, depending on the analytical method used. In other words, New Hampshire has opted to formulate its water quality standard for tidal waters used for growing or taking of shellfish for human consumption in a manner that intrinsically links it to the analytical method employed.

However, since the daily fecal coliform monitoring requirement now included in Part I standard conditions allows the use of any EPA approved method, EPA has removed the revised the language in Part I.G.2.c of the Final Permit requiring notification to reflect units of "organisms per 100 mL" rather than "CFU per 100mL."

Comment 3

2. NPDES Permit PART I A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.; Footnote 10

Comment:

This footnote specifies, " ... Toxicity test samples shall be collected and tests completed during the same weeks each time of the calendar quarters ending ... ". It is not clear what this means. Is the "same week" reference in terms of one quarter to the next, or is it in terms of the same quarter

from the previous year? Please clarify the meaning. We also request that this requirement be removed or expand the time period (e.g. same month of the quarter) to allow for potential coordination issues that can occur in the completion of WET testing including staff availability and coordination with the laboratory.

Response 3

In the context of collecting toxicity test samples, “same week” refers to one quarter to the next. For instance, a facility sampling starting the second week of March would need to sample during the second week of June, September, and December. Allowing the Facility to choose which week during the calendar quarter it will sample gives the Facility flexibility concerning staff availability and coordination with laboratories.

Comment 4

3. NPDES Permit PART I A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS; Part I.A.4

Current language:

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.

Comment:

The Town is concerned that this requirement is subjective and could open the Town up to unfounded liability. We respectfully request that the EPA provide a metric for which "objectionable taste, odor, or color" as described by Env-Wq 1700 will be defined or tested in the instance that a claim is made.

Response 4

NH WQS at Env-Wq 1703.03(c)(1) prohibit substances that would, “*Produce odor, color, taste or turbidity which is not naturally occurring and would render it unsuitable for its designated uses,*” in all surface waters. Env-Wq 1703.03(c)(3) requires that “*Tainting substances shall not be present in concentrations that individually or in combination are detectable by taste and odor tests performed on the edible portions of aquatic organisms,*” for all surface waters. The narrative permit condition is a close translation of the applicable narrative water quality criteria. Unlike many numeric water quality criteria, narrative criteria can sometimes contain inherently subjective components that are not well suited to translation into binary tests or strict numeric thresholds, which might facilitate compliance, as the commenter suggests. Where translation of the narrative criteria into a numeric target is infeasible, expressing that narrative criteria as a narrative permit condition is reasonable, if not necessary, in order to implement state water quality standards, as EPA is obligated to do under Section 301 of the Act. Limits like these do not expose permittees to “unfounded liability,” but they do require interpretation, like many enforceable legal requirements. As to the definition of “tainting substances,” EPA construes the term “objectionable” consistent with its common usage, that is, “unpleasant” or “offensive.” “Detectable” in its ordinary usage means “noticeable” or “perceptible.” Together, these terms are sufficiently clear to

apprise a person of ordinary intelligence of their obligations under the permit and will not foster arbitrary enforcement. In order to enforce the provision, EPA would need to determine whether a reasonable person would find that tainting substances are present in the discharge, that they are causing noticeable or perceptible tastes or odors that are offensive or unpleasant and that the permittee caused or contributed to that tainting.

Comment 5

NPDES Permit Part I G. SPECIAL CONDITIONS; Part I.G.2.c

Current language:

Daily post-disinfection effluent samples of 31 CFU per 100 mL or greater.

Revise language as follows:

Daily post-disinfection effluent samples of 31 fecal coliform CFU per 100 mL or greater.

Response 5

Part I.G.2.c of the Final Permit has been changed to, “Daily post-disinfection effluent samples of either 28 organisms per 100 mL or greater. Notification shall also be made for instances where NPDES-required bacteria sampling is not completed, or where the results of such sampling are invalid. This is a state certification requirement.”

Also, see Response 2.

Comment 6

Fact Sheet Page 15/32 Section 4.3 Available Dilution and Appendix B CORMIX Reports-

Comments:

The newly calculated dilution factor is 50% lower than the previously calculated dilution based on. “Recent CORMIX modeling by NHDES using CORMIX Version 11...” There is reference to an Email within DES (Hayley Franz to Stergios Spanos, January 9, 2020), which is intended to clarify the reasons for the significant change. We request that a copy of the Email should be included in the Fact Sheet to provide administrative basis for the calculation.

The Fact Sheet indicates that the outfall is located “at a depth of 30 feet below the surface.” However, the CORMIX modeling is based on a depth of 23.7 feet (7.22 m). Please clarify this discrepancy.

The CORMIX modeling is based on a worst-case ambient velocity of 0.0143 m/sec (0.046 ft/sec). What is the basis of this value?

The CORMIX output report indicates the Near Field Region dilution at the edge of NFR is 56.2 (page 2 of CORMIX Report) and last page of report states “Hydrodynamic center line dilution is 36.1, which is apparently the basis of new permit dilution factor – What is the difference between these two model conditions? Why is one condition more valid than the other?”

Response 6

EPA has attached the requested email to this Response to Comments (see Appendix A). The email documents NHDES discussions with Dr. Robert Doneker of MixZon and the principal author of CORMIX regarding the change in the Seabrook dilution. Dr. Doneker explained that the current version of CORMIX approximates tidal conditions, which may have not been available in the previous version. It was explained that with a tidal discharge, pooling occurs around the outfall during tidal reversal and temporary pooling will reduce the dilution because the discharge is not being diluted with new material, it is being diluted with the pooled material. There have been numerous CORMIX version updates since the 1999 CORMIX modeling was completed. NHDES followed up with MixZon at EPA's request. It is noted that the Session Report shows a dilution at the edge of the nearfield region as $S=56.2$ which is the result of a software bug; however, the Prediction File should be used for the results and that has $S=36.1$ (see Appendix B).

The Fact Sheet statement "at a depth of 30 feet below the surface" is based on information in the application (in section A.9.c) submitted by the Permittee on April 30, 2015. The input information for the CORMIX modeling can be found in the report: "Hydrodynamic Mixing Study, Seabrook Wastewater Treatment Facility, Town of Seabrook, NH" dated September 10, 1999, which was prepared for the Town of Seabrook by Earth Tech. The discussion of depth of 23.7 feet is found on page 8 and is the average flow depth for the spring slack low tide. The discussion of the worst-case ambient velocity of 0.0143 m/sec is found on page 6 and Table 1.

NHDES Policy⁶ requires "The *available dilution S*, (from the worst case of the four model runs as described above) *will be the lesser of either 1) that obtained at the horizontal distance $x = 500$ feet downstream of the outfall, 2) that obtained when the predicted plume width is = 50% of the river width, 3) that obtained when the time of travel along the plume centerline ≤ 15 minutes [see below] or 4) a maximum dilution factor of 100**

C. Comments from Betsy Reilly, Ph.D., Director, Environmental Quality Department, MWRA, dated August 6, 2020

Comment 7

Comments on indicator bacteria methods – I.1.a footnote 9

The draft permit includes use of a specific testing method (mTEC) for fecal coliform. MWRA strongly recommends removing mTEC as the only analytical test method and instead allow the use of any sufficiently sensitive EPA-approved method listed at 40 CFR 136.3 for compliance with this permit. As noted in the Fact Sheet, other methods are acceptable. Additionally, MWRA suggests removing 'Colony Forming Units (CFU)' and replacing it with "organisms". This will allow for the use of methods that report in different units accepted by EPA in compliance with 40 CFR 136 and will help to avoid confusion on reporting units.

⁶ "NH Method for Determining Dilution Factors for Marine/Estuarine Discharges," dated October 28, 2003

Response 7

Please see Responses 1 and 2.

EPA also notes that there is a distinct difference between the New Hampshire WQS and the Massachusetts WQS regarding reference to the NSSP. As discussed above, the NH WQS require that *“tidal waters used for growing or taking of shellfish for human consumption shall, in addition to the foregoing requirements, be in accordance with the criteria recommended under the National Shellfish Program Manual of Operation...”*

This requires effluent limits for compliance with the numerical criteria in the NH WQS and the numerical criteria in the NSSP. The MA WQS require, *“Waters designated for shellfishing shall not exceed a fecal coliform median or geometric mean MPN of 88 organisms per 100 ml, nor shall more than 10% of the samples exceed an MPN of 260 per 100 ml or other values of equivalent protection based on sampling and analytical methods used by the Massachusetts Division of Marine Fisheries and approved by the National Shellfish Sanitation Program in the latest revision of the Guide For The Control of Molluscan Shellfish (more stringent regulations may apply, see 314 CMR 4.06(1)(d)(5)).”* Given the “or” in the MA WQS, EPA establishes effluent limits for compliance with the numerical standards in the MA WQS.

Comment 8

Comments on Special Conditions

The draft permit requires immediate notification of the Shellfish Section of NHDES-WD of possible high bacteria/virus loading events. Although disinfection system problems or failure to meet the fecal coliform limit would indicate a risk to shellfish consumers, it is not clear why exceeding a particular flow value would do so. If the disinfection is adequate the bacteria count in the effluent will meet the shellfishing standard for receiving water. Therefore, it would be impossible for the effluent to cause a violation of the shellfishing standard regardless of the volume discharged, provided the numerical effluent concentration limit is met. MWRA recommends the following changes to this condition:

- In section G.2, change “high bacteria/virus loading events” to “potential high bacteria/virus concentration events”
- Delete G.2.b, the requirement to provide notification if flows exceed the rolling average flow limit of 1.8 MGD

Response 8

These Special Conditions are included at the request of NHDES Shellfishing Program. The language was provided by NHDES.

The NHDES Shellfish Program has traditionally requested that facilities notify program staff when flows exceed the effluent flow used to develop the prohibitive zone. It is not an effluent limit and is used by the Shellfish Program for management purposes. Because of the human health and ecological impacts associated with high bacteria/virus loading events, this reporting requirement is reasonable and rationally related to the purposes of the CWA.

D. Comments from Patsy Root, Regulatory Affairs Manager, IDEXX Water, dated July 20, 2020

Comment 9

PART I A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.; Footnote 9

Current language:

The Average Monthly value for Fecal Coliform shall be determined by calculating the geometric mean using the daily sample results. As a Daily Maximum, not more than 10 percent of the collected samples (over a monthly period) shall exceed a 31 Colony Forming Units (CFU) per 100 mL for a MF (mTEC) test. Each month the percentage of collected samples that exceeds 31 CFU per 100 mL for the MF (mTEC) test shall be reported at the Daily Maximum value. Furthermore, all Fecal Coliform data collected must be submitted with the monthly Discharge Monitoring Reports (DMRs).

Revise language as follows:

The Average Monthly value for Fecal Coliform shall be determined by calculating the geometric mean using the daily sample results. As a Daily Maximum, not more than 10 percent of the collected samples (over a monthly period) shall exceed a 31 ~~Colony Forming Units (CFU)~~ **organisms** per 100 mL for a MF (mTEC) test. Each month the percentage of collected samples that exceeds 31 **organisms** CFU per 100 mL for the MF (mTEC) test shall be reported at the Daily Maximum value. Furthermore, all Fecal Coliform data collected must be submitted with the monthly Discharge Monitoring Reports (DMRs).

Rationale for Change:

a. Removal of CFU units

- i. Removal of CFU as the unit of measure allows the use of methods that report in different units, such as either Most Probable Number or Colony Forming Units; both types of method reporting units are accepted by US EPA for compliance with Clean Water Act testing.
- ii. Removing CFU and stating ‘organisms’ will be less confusing to utilities and laboratories as they decide on using either a CFU or MPN reporting test method.

b. Remove mTEC as the sole analytical method for fecal coliform testing.

- i. This permit requires the testing of *wastewater effluent*, not shellfish bed nor receiving water testing. The regulatory methodology employed for wastewater effluent testing should comply with EPA wastewater effluent testing per 40 CFR 136.3 to accomplish the quality goals.
- ii. NH 485-A:8 states that wastewater effluent discharge ‘*be in accordance with the criteria*’ of the FDA NSSP guidance. The goal to meet the *criteria* but does not mandate being commensurate with the testing *methods*. Having wastewater effluent discharge meet or exceed the *criteria* of the receiving water can, and should, be accomplished by testing wastewater effluent with sufficiently sensitive EPA-approved fecal coliform testing method.

- iii. Removing mTEC as the only allowable fecal coliform test method allows utilities and laboratories to choose a sufficiently sensitive method that best supports their data reporting needs and still meets New Hampshire's Water Quality Standards fecal coliform limits. The limit for fecal coliform can, and should, be *irrespective of the method*, which is consistent with the approach taken by US EPA.
- iv. Only allowing the use of mTEC would be a step back in data quality. Published data indicate the mTEC method can have an undetected target error of 20% and a **selectivity index of only 66%** (J. SANTIAGO-MERCADO and T.C. HAZEN). Allowing utilities and laboratories to choose methods from the CFR provides flexibility to use methods with higher selectivity and specificity to improve data outcomes.
- v. Only allowing a single analytical method is a risk to compliance. If medium or materials to perform this method become unavailable, the discharger cannot test. Historically, EPA encourages multiple testing methodologies to avoid any inability to perform compliance testing.

Response 9

Please see Responses 1 and 2.

Comment 10

Fact Sheet, Section 5.1.6 Monitoring Requirements (pages 18/19) Comment

The permit authors requested comment on the methods listed as:

- MPN of 43 per 100 milliliters for a 5-tube decimal dilution test; or
- MPN of 49 per 100 mL for a 3-tube decimal dilution test; or
- MPN of 28 per 100 mL for a 12-tube single dilution test; or
- 31 colony forming units (CFU) per 100 mL for a MF (mTEC) test.

Comment:

- a. EPA Region I should allow the use of any EPA-approved analytical listed at 40 CFR 136.3 for effluent discharges, not just mTEC, to best protect environmental and public health and meet the criteria objectives of 485-A:8.
- b. US EPA has historically avoided having a single analytical method for compliance testing in situations where multiple analytical methods have been appropriately validated. This permit should allow any EPA-approved testing method listed in the CFR.

Rationale:

US EPA requires the use of sufficiently sensitive methods for compliance with EPA programs and regulations. Data are the important outcome of testing and should assure the Agency that the waterways and public are protected at the highest level practical. Not allowing methods with demonstrated performance advantages is counter to that requirement.

It is strongly suggested EPA Region I exert their regulatory authority by leveraging the EPA's Sufficiently Sensitive method rule (2014, EPA-HQ-OW-2009-1019) and allow the use of any sufficiently sensitive EPA-approved method listed at 40 CFR 136.3 for compliance with this permit, and to meet the criteria goals stated in NH 485-A:8 referencing FDA guidance.

Response 10

Please see Responses 1 and 2.

Comment 11

General Comment 1: FDA has not updated the NSSP microbial methods since 1990s

- a. US EPA is forward-looking in updating analytical methods to include methods that improving data quality and precision through the Method Update Rule process. This process leads to improved environmental and public health protection by allowing methods that are at least equal to, and often better than, older analytical methods. It appears, at least to this commenter, that FDA has not updated their analytical test methods in nearly 30 years. The mTEC method, specifically, is not widely used in laboratory settings.
- b. The mTEC method has been shown to be less protective of environmental and public health and puts the discharger at risk of not meeting EPA and State quality objectives (J. SANTIAGO-MERCADO and T.C. HAZEN).

Response 11

The mTEC method, as it is not approved in 40 CFR Part 136, has been removed from the Final Permit and replaced with the 5-tube decimal dilution test method. Please see Responses 1 and 2.

Comment 12

General Comment 2: Alternative to only allowing mTEC / fecal coliform testing

- a. Change the discharge bacterial target from fecal coliform to enterococci. This would match the US EPA Water Quality Standard guidance, US EPA BEACH Act bacterial targets, current NH beach regulations and most NH 485-A:8 water quality criteria. Updating this permit to test for enterococci will protect receiving waters and shellfish bed areas.

Response 12

EPA maintains its interpretation that current NH statutes, regulations and policy documents require effluent limits for facilities that discharge to tidal waters used for the growing or taking of shellfish that assure compliance with the bacteria criteria recommended in the NSSP.

The NH Statute at Title 50, Chapter 485A, Section 485-A:8.II, states Class B waters “shall be considered as being acceptable for fishing, swimming and other recreational purposes and, after adequate treatment, for use as water supplies.” Additionally, 485-A:8.V requires that “Those tidal waters used for growing or taking of shellfish for human consumption shall, in addition to the foregoing requirements, be in accordance with the criteria recommended under the National Shellfish Program Manual of Operation, United States Department of Food and Drug Administration.”

NH Regulations at Env-Wq 1703.01 - Water Use Classifications; Designated Uses state:

- (a) All surface waters shall be classified as provided in RSA 485-A:8, based on the standards established therein for class A and class B waters. Each classification shall identify the most sensitive use it is intended to protect.
- (b) All surface waters shall be restored to meet the water quality criteria for their designated classification including existing and designated uses, and to maintain the chemical, physical, and biological integrity of surface waters.
- (c) All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters.
- (d) Unless high or low flows are caused by naturally-occurring conditions, surface water quantity shall be maintained at levels adequate to protect existing and designated uses.

Env-Wq 1703.06 requires (a) Uses and criteria associated with bacteria shall be as set forth in RSA 485-A:8, I, II, and V. (b) Subject to (c), below, the bacteria criteria shall be applied at the end of a wastewater treatment facility's discharge pipe.

EPA finds that the language in the NH Water Quality Standards (WQS) at Chapter 485A, Section 485-A:8, V is specific that the criteria in the NSSP Manual must met "in addition to the foregoing requirements" that "tidal waters for swimming purposes shall contain not more than either a geometric mean based on at least 3 samples obtained over a 60-day period of 35 enterococci per 100 milliliters, or 104 enterococci per 100 milliliters in any one sample, unless naturally occurring." The effluent limits in the Draft Permit were established to address these requirements as it had been in the 2010 Permit and is consistent with NHDES policy.

The NH WQS require two different bacteria requirements for tidal waters based on designated use: the enterococci limits protect the swimming use and the fecal coliform bacteria limits protect the shellfishing use. The criteria for the shellfishing use are included in the NH WQS by reference to the National Shellfish Program Manual of Operation, most recently entitled, "National Shellfish Sanitation Program (NSSP): Guide for the Control of Molluscan Shellfish, 2017 Version,"

The NSSP requires:

E. Standard for the Approved Classification of Growing Areas Affected By Point Sources.

(1) Water Quality. The bacteriological quality of every station in the growing area shall meet the fecal coliform standard in Section E. (2).

(2) Fecal Coliform Standard for Adverse Pollution Conditions. The fecal coliform median or geometric mean MPN or MF (mTEC) of the water sample results shall not exceed fourteen (14) per 100 ml, and not more than ten (10) percent of the samples shall exceed an MPN or MF (mTEC) of:

- (a) 43 MPN per 100 ml for a five-tube decimal dilution test;*

- (b) 49 MPN per 100 ml for a three-tube decimal dilution test;*
- (c) 28 MPN per 100 ml for a twelve-tube single dilution test; or*
- (d) 31 CFU per 100 ml for a MF (mTEC) test.”*

Since NH WQS for tidal waters used for the growing or taking of shellfish incorporate the NSSP by reference at Chapter 485A, Section 485-A:8, V, a fecal coliform standard in accordance with the NSSP must be applied.

Comment 13

Summary

This commenter suggests focusing on the quality and testing of the effluent discharge, which will meet NH water quality criteria objectives. Allow the use of any sufficiently sensitive, EPA-approved fecal coliform testing method listed at 40 CFR 136.3 by leveraging existing EPA Region I authority and EPA Rules to meet effluent discharge requirements. Another alternative would be to use enterococci as the effluent discharge target to better align with federal and state water quality criteria. Lastly, remove CFU and replace with organisms to avoid confusion on reporting units.

Response 13

EPA is not at liberty to require any sufficiently sensitive, EPA-approved fecal coliform testing methods if such a method would contradict state WQS. Please see Responses 1 and 2.

E. Comments from Kirk Cram, Laboratory Director, Enthalpy Analytical, LLC, dated July 22, 2020.

Comment 14

PART I A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.;

Footnote 9

Current language:

The Average Monthly value for Fecal Coliform shall be determined by calculating the geometric mean using the daily sample results. As a Daily Maximum, not more than 10 percent of the collected samples (over a monthly period) shall exceed a 31 Colony Forming Units (CFU) per 100 mL for a MF (mTEC) test. Each month the percentage of collected samples that exceeds 31 CFU per 100 mL for the MF (mTEC) test shall be reported at the Daily Maximum value. Furthermore, all Fecal Coliform data collected must be submitted with the monthly Discharge Monitoring Reports (DMRs).

Revise language as follows:

The Average Monthly value for Fecal Coliform shall be determined by calculating the geometric mean using the daily sample results. As a Daily Maximum, not more than 10 percent of the collected samples (over a monthly period) shall exceed a 31 Colony Forming Units (CFU) or Most Probable Number (MPN) per 100 mL. Each month the percentage of collected samples that exceeds 31 CFU or MPN per 100 mL shall be reported at the Daily Maximum value.

Furthermore, all Fecal Coliform data collected must be submitted with the monthly Discharge Monitoring Reports (DMRs).

Rationale for Change:

- a. Addition of MPN units
 - i. Addition of MPN as a unit of measure allows for the use of all methods that are accepted by US EPA for compliance with Clean Water Act testing.
 - ii. CFU and MPN are considered equivalent measurements of bacteria content.
- b. Remove mTEC as the sole analytical method for fecal coliform testing.
 - i. This permit requires the testing of wastewater effluent. The regulatory methodology employed for wastewater effluent testing should comply with EPA wastewater effluent testing per 40 CFR 136.3 to accomplish the quality goals.
 - ii. NH 485-A:8 states that wastewater effluent discharge “*be in accordance with the criteria*” of the FDA NSSP guidance. The goal to meet the criteria does not mandate using the test methods noted in the NSSP, nor is the NSSP intended to specify regulation of wastewater. Having wastewater effluent discharge meet or exceed the criteria of the receiving water can, and should, be accomplished by testing wastewater effluent with sufficiently sensitive EPA-approved fecal coliform testing method.
 - iii. Removing mTEC as the only allowable fecal coliform test method allows utilities and laboratories to choose a sufficiently sensitive method that best supports their data reporting needs and still meets New Hampshire’s Water Quality Standards fecal coliform limits. The limit for fecal coliform can, and should, be irrespective of the method, which is consistent with the approach taken by the US EPA and promulgated in 40 CFR 136.3.
 - iv. Only allowing the use of mTEC would be a step back in data quality. Published data indicate the mTEC method can have an undetected target error of 20% and a selectivity index of only 66% (J. SANTIAGO-MERCADO and T.C. HAZEN). Allowing utilities and laboratories to choose methods from the CFR provides flexibility to use methods with higher selectivity and specificity to improve data outcomes.
 - v. Only allowing a single analytical method is a risk to compliance. If medium or materials to perform this method become unavailable, the discharger cannot test. Historically, EPA encourages multiple testing methodologies to avoid any inability to perform compliance testing.
 - vii. The NSSP was developed to provide guidance related to shellfish and shellfish culturing as it relates to food for human consumption, not wastewater monitoring.

Response 14

Please see Responses 1 and 2.

Comment 15

Fact Sheet, Section 2.4.1 Monitoring Requirements (pages 18/19)

The permit authors requested comment on the methods listed as:

- *MPN of 43 per 100 milliliters for a 5-tube decimal dilution test; or*
- *MPN of 49 per 100 mL for a 3-tube decimal dilution test; or*
- *MPN of 28 per 100 mL for a 12-tube single dilution test; or*
- *31 colony forming units (CFU) per 100 mL for a MF (mTEC) test.*

Comment:

- a. US EPA Region I should allow the use of any US EPA-approved analytical methods listed at 40 CFR 136.3 for effluent discharges, not just mTEC, to best protect environmental and public health and meet the criteria objectives of 485-A:8.
- b. US EPA has historically avoided having a single analytical method for compliance testing in situations where multiple analytical methods have been appropriately validated. This permit should allow any US EPA-approved testing method listed in the CFR.

Rationale:

US EPA requires the use of sufficiently sensitive test methods for compliance with US EPA programs and regulations. Data is the important outcome of testing and should assure the Agency that the waterways and public health are protected at the highest level practical. Not allowing methods with demonstrated performance advantages is counter to that requirement.

It is strongly suggested EPA Region I exert their regulatory authority by leveraging the EPA's Sufficiently Sensitive method rule (2014, EPA-HQ-OW-2009-1019) and allow the use of any sufficiently sensitive EPA-approved method listed at 40 CFR 136.3 for compliance with this permit, and to meet the criteria goals stated in NH 485-A:8 referencing FDA guidance.

Response 15

Please see Responses 1 and 2.

Comment 16

FDA has not updated the NSSP microbial methods since 1990s

- a. US EPA is forward-looking in updating analytical methods to include methods that improve data quality and precision through the Method Update Rule process. This process leads to improved environmental and public health protection by allowing methods that are at least equal to, and often better than, older analytical methods. It appears that FDA has not updated their analytical test methods in nearly 30 years. The mTEC method, specifically, is not widely used in laboratory settings.
- b. The mTEC method has been shown to be less protective of environmental and public health and puts the discharger at risk of not meeting EPA and State quality objectives (J. SANTIAGO-MERCADO and T.C. HAZEN).

Response 16

Please see the Responses 1 and 2

Comment 17

Summary:

We suggest focusing on the quality and testing of the effluent discharge, which will meet NH and national water quality criteria objectives. Allow the use of any sufficiently sensitive, EPA-approved fecal coliform testing method listed in 40 CFR 136.3 by leveraging existing EPA Region I authority and EPA Rules to meet effluent discharge requirements. Finally, include both CFU and MPN units to facilitate the use of these promulgated methods.

Enthalpy Analytical, LLC encourages EPA Region I and NHDES to collectively consider these comments to continue the improvement and protection of the environment and public health.

Response 17

Please see Responses 1 and 2

F. Comments from Christopher M. Perkins, PE, Chair NHWPCA Permit Committee, dated July 21, 2020.

Comment 18

With regard to Draft NPDES Permit No. NH0101303 issued to the Town of Seabrook, New Hampshire, we formally request that EPA reconsider the methodology required for determining the Average Monthly value for Fecal Coliform. The exclusion of the longstanding Colilert-18 (IDEXX) as an approved method for fecal coliform presents multiple challenges to permittees seeking to demonstrate permit compliance.

The draft permit references both NH RSA 485-A:8.V and the National Shellfish Sanitation Program (NSSP) Manual of Operation (2017) for guidance on bacterial testing requirements for fecal coliforms. However, both NH RSA 485 and the NSSP Manual are clear in stating that the standards and guidelines within those documents are developed for application on the receiving water bodies (defined as a “tidal waters” and “shellstock growing areas”). Therefore, the NSSP bacterial testing methods should not be applied to wastewater effluent given the nature of the discharge. The Colilert-18 (IDEXX) method for fecal coliform testing in wastewater effluent has been approved under 40 C.F.R § 136.3 of the Clean Water Act and has been recognized as an equivalent coliform testing method by EPA.

It is also concerning that there may be only one New Hampshire laboratory FDA-certified to perform the single approved method mandated by the Draft Permit. This would present challenges for permittees seeking to contract out this portion of their sampling program, while the agar and premade plates can become very difficult to acquire.

In addition, there are multiple studies demonstrating the efficacy of the Colilert-18 (IDEXX) method for fecal coliform.

- a) The EPA ATP Validation study publication compared the EPA ‘gold standard’ Standard Methods 9222G to Colilert-18. Briefly, the Colilert-18 (IDEXX)/FC method outperformed SM9222G in all areas, including false positive/ false negative rates, specificity and sensitivity. It is acknowledged that this study was performed against SM9222G with the understanding that EPA considers the SM9222G method the best performer in the group of approved MF methods. The link to this study may be found here:
<https://123.idexx.com/resource-library/water/water-reg-article15B.pdf>
- b) The study linked here <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC106820/> compared membrane filtration and multiple-tube fermentation by the Colilert and Enterolert Methods for Detection of Waterborne Coliform Bacteria. As indicated in the abstract, “The Colilert method was found to be more sensitive than Swedish standard methods for detecting coliform bacteria...”
- c) The study found at the link below indicated that the “(d)ifferences for all of these indicators were small enough that, when assessed categorically, there was more than 90% agreement between CS and either MF or MTF methods as to whether State of California Beach Water Quality Standards were met.” Source:
http://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2001_02AnnualReport/37_ar29-rachel.pdf
- d) Another study further demonstrates that Colilert-18 is an acceptable method. Source:
<http://archive.sccwrp.org/ResearchAreas/BeachWaterQuality/ComparisonAmongIDEXXMembraneFiltration.aspx>

For the above reasons, we request that the Colilert-18 (IDEXX) method remain an accepted method for testing fecal coliform bacteria for wastewater effluent. In addition, we proactively request that the Colilert-18 (IDEXX) method remain an accepted method for all coastal permits issued in New Hampshire moving forward.

Response 18

Please see Responses 1 and 2.

Appendix A

Email Hayley Franz, NH DES to Michele Barden, RE: Written
summary of Seabrook dilution revision; sent on February 12, 2020

From: [Franz, Hayley](#)
To: [Barden, Michele](#)
Subject: RE: Written summary of Seabrook dilution revision
Date: Wednesday, February 12, 2020 11:44:53 AM
Attachments: [FW Dilution Discrepancy with Previous CORMIX Version.msg](#)

Hi Michele,

See the attached summary that I sent to Sterg after I talked to Dr. Doneker – does this help? If not, I can draft something else.

Thanks,
Hayley

From: Barden, Michele <Barden.Michele@epa.gov>
Sent: Wednesday, February 12, 2020 11:17 AM
To: Franz, Hayley <Hayley.Franz@des.nh.gov>
Subject: Written summary of Seabrook dilution revision

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

Hi Hayley,

Did you do a written summary of the Seabrook dilution revision? I'm just looking for something to append to the record particularly that you followed up with Doneker and the changes he told you about in the model.

Thanks,
-Michele

Michele Cobban Barden
Environmental Scientist
Water Division
EPA Region 1
5 Post Office Square, Suite 100 (6-1)
Boston, MA 02109-3912
Telephone: 617.918.1539, Fax: 617.918.0539
Email: barden.michele@epa.gov

Barden, Michele

From: Franz, Hayley <Hayley.Franz@des.nh.gov>
Sent: Thursday, January 9, 2020 3:44 PM
To: stergios.spanos@des.nh.gov
Subject: FW: Dilution Discrepancy with Previous CORMIX Version

Hi Sterg,

Dr. Doneker at MixZon just called to respond to my request below regarding the discrepancy with the Seabrook dilution.

In summary, he said that the dilution of 36 that the current model is showing seems reasonable for the worst case dilution.

The current model approximates tidal conditions, and he thinks that this feature may have not been available with the previous version. The previous version could have simply been a steady-state model.

He described that with the tidal discharge, pooling occurs around the outfall during tidal reversal and temporary pooling will reduce the dilution because the discharge is not being diluted with new material, it is being diluted with the pooled material.

While I was on the phone, he ran the model with steady state conditions (ambient velocity = 0) and calculated a dilution of 73. However, he said that this was not really representative of the worst case dilution scenario, and that the 36 was more realistic.

He did indicate that there is a bug with the output file – it seems to be missing some of output table. He did say that this was likely just a bug with the output format and not the model itself.

We should discuss how to proceed.

Thanks,
Hayley

From: Franz, Hayley
Sent: Thursday, January 9, 2020 3:06 PM
To: 'support@mixzon.com'
Subject: Dilution Discrepancy with Previous CORMIX Version

Good afternoon,

I work for the NH Department of Environmental Services. My CORMIX license includes CorSupport, and I was hoping you could help me with a question that I have with a specific model.

I am trying to determine the dilution for a wastewater treatment facility outfall. The facility discharges to the Atlantic Ocean.

The dilution for this facility was initially calculated using a CORMIX model in 2000 (CORMIX Version 4.03b). The session report and prediction file for that model are attached.

I am currently trying to run the model in the newest version of CORMIX. From what I can see, all of the input parameters remain the same, but the resulting dilution is about half of what it was determined to be in by my predecessor in the 2000 model. It looks as though this difference may be coming from a difference in where the model is terminating in the current version of CORMIX, versus where it terminated in the older version.

Can you please assist in determining if this is the reason for the change in dilution? If so, why is the model terminating at a different location than previously? If not, what is causing the difference in dilution values?

Thank you in advance for your help!

Hayley Franz, P.E.

Permits Engineer

Wastewater Engineering Bureau, Water Division

New Hampshire Department of Environmental Services

29 Hazen Drive, PO Box 95, Concord, NH 03302

Tel: (603) 271-0671

Appendix B

Emails between Hayley Franz, NHDES and Adi S Ramachandran,
MixZon, Inc., dated January 15, 2021

From: modeling@support.mixzon.com
To: [Franz_Hayley](#)
Subject: [mixzon.com #18599] NFR Clarification
Date: Friday, January 15, 2021 2:47:47 PM
Attachments: [rt-18599-SeabrookDilution-v12.0.1.0-SessionReport-Fixed.pdf](#)
[rt-18599-SeabrookDilution-v12.0.1.0-PredictionFile-Fixed.pdf](#)

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Ms. Franz:

Thank you for your email. Regarding your inquiry:

1. CORMIX can provide the following two output files for each simulation:

- The Prediction file (*.prd)
- The Session Report or Simulation Summary file (*.ses)

2. We always strongly recommend using the values from the CORMIX Prediction file (*.prd). In this case, the predicted plume properties at the end of the near field region (NFR) from the prediction file are are:

X= 2.05 m
Y= 1.23 m
Z= 2.58 m
S= 36.1
C= 0.279E+01 %
BV= 0.47 m
BH= 13.32 m
Uc= 0.120 m/s
TT= 12.5 seconds

where S = hydrodynamic centerline dilution at the end of the NFR.

3. The Session Report (*.ses) is based on the prediction file and mostly summarizes the CORMIX prediction file results. Values reported in the session report are sometimes interpolated from values presented in the prediction file. There can be errors due to data transfer from the prediction file to the session report.

4. In this particular case, the dilution at the edge of the NFR is INCORRECTLY reported as:
"Dilution at the edge of NFR S = 56.2" in the Session Report.

This is a bug in both CORMIX

[vhttps://urldefense.com/v3/_http://11.0.1.0_!!Oai6dtTOULp8Sw!CecHz7pv34ydU5SJufAH0J2ukg2ernOD6OmYTjiWjwLX-rtGxwnwW27ByfbooDqVZOK9PUF\\$](https://urldefense.com/v3/_http://11.0.1.0_!!Oai6dtTOULp8Sw!CecHz7pv34ydU5SJufAH0J2ukg2ernOD6OmYTjiWjwLX-rtGxwnwW27ByfbooDqVZOK9PUF$) and the latest release CORMIX
[vhttps://urldefense.com/v3/_http://12.0.0.0_!!Oai6dtTOULp8Sw!CecHz7pv34ydU5SJufAH0J2ukg2ernOD6OmYTjiWjwLX-rtGxwnwW27ByfbooDqVU8E3yt3\\$](https://urldefense.com/v3/_http://12.0.0.0_!!Oai6dtTOULp8Sw!CecHz7pv34ydU5SJufAH0J2ukg2ernOD6OmYTjiWjwLX-rtGxwnwW27ByfbooDqVU8E3yt3$).

The Session Report needs to present the same value of S = 36.1 from the prediction file at the end of the NFR.

5. We have fixed this output bug in the Session Report for this case. Attached are PDF copies of the prediction file and session report for this case, generated using an internal update version of CORMIX [vhttps://urldefense.com/v3/_http://12.0.1.0_!!Oai6dtTOULp8Sw!CecHz7pv34ydU5SJufAH0J2ukg2ernOD6OmYTjiWjwLX-rtGxwnwW27ByfbooDqVWvjvVTi\\$](https://urldefense.com/v3/_http://12.0.1.0_!!Oai6dtTOULp8Sw!CecHz7pv34ydU5SJufAH0J2ukg2ernOD6OmYTjiWjwLX-rtGxwnwW27ByfbooDqVWvjvVTi$).

6. I believe the value of S = 36 reported at the end of the NFR in the prediction file is consistent with your past discussions with Dr. Robert Doneker and his analysis.

7. We hope to release an update fixing this bug in the Session Report along with other updates to CORMIX v12.0 soon. We will notify you when such an update becomes available. Thank you for reporting this to bug us.

8. CORMIX v4.04b (2000) is an outdated legacy version of CORMIX and we do not license, distribute, or support it. We continuously update CORMIX. A list of bug fixes, updates, and improvements in CORMIX over the last 17 years is published at: [https://urldefense.com/v3/_http://www.mixzon.com/quality_assurance.php_!!Oai6dtTOULp8Sw!CecHz7pv34ydU5SJufAH0J2ukg2ernOD6OmYTjiWjwLX-rtGxwnwW27ByfbooDqVVBX2IeR\\$](https://urldefense.com/v3/_http://www.mixzon.com/quality_assurance.php_!!Oai6dtTOULp8Sw!CecHz7pv34ydU5SJufAH0J2ukg2ernOD6OmYTjiWjwLX-rtGxwnwW27ByfbooDqVVBX2IeR$)

I hope that helps.

Regards,

-Adi

--

Adi S Ramachandran

Sr. Software/Systems & Modeling Engineer,

MixZon Inc

Suite 301, 1033 SW Yamhill St.

Portland, OR - 97205 USA

E-mail:adiram@mixzon.com

Ph: (503)-222-1022

Fx: (503)-296-2354

https://urldefense.com/v3/_http://www.mixzon.com_!!Oai6dtTOULp8Sw!CecHz7pv34ydU5SJJuFAH0lj2ukg2ernOD6OmYTjiWjwLX-rtGxwnwW27ByfbooDqVROpVl6CS
https://urldefense.com/v3/_http://www.cormix.info_!!Oai6dtTOULp8Sw!CecHz7pv34ydU5SJJuFAH0lj2ukg2ernOD6OmYTjiWjwLX-rtGxwnwW27ByfbooDqVdjon-6bS

NOTICE: This message, including any attachments, is for the sole use of the intended recipient and may contain proprietary, confidential and privileged information. Any unauthorized review, use, dissemination, copying, printing, disclosure or other use of this communication is prohibited. If you are not the intended recipient, please contact the sender by reply email and destroy all copies of the original message. Thank you.

> On Fri Jan 15 08:13:44 2021, Hayley.G.Franz@des.nh.gov wrote:
> Good afternoon,
>
> I had reached out about a year ago on a question regarding
> different results using the same inputs on two different versions
> of CORMIX.
>
> This request and my notes from my call with Dr. Doneker are
> attached.
>
> The dilution that was determined using the most recent version of
> CORMIX was used in the reissuance of a NPDES permit. During the
> public comment period on that NPDES permit, the permittee asked
> for clarification on the difference between the near field region
> dilution and the hydrodynamic centerline dilution. The exact
> comment says, "The CORMIX output report indicates the Near Field
> Region dilution at the edge of NFR is 56.2 (page 2 of CORMIX
> Report) and last page of report states "Hydrodynamic center line
> dilution is 36.1, which is apparently the basis of new permit
> dilution factor - What is the difference between these two model
> conditions? Why is one condition more valid than the other?"
>
> Could you please explain the difference between the near field
> region dilution and the hydrodynamic centerline dilution? Note
> that your response will be provided to the permittee and will
> become part of the public record for this permit.
>
> Thank you in advance for your help with this question!
>
> Hayley Franz, P.E.
> Permits Engineer
> Wastewater Engineering Bureau, Water Division
> New Hampshire Department of Environmental Services
> 29 Hazen Drive, PO Box 95, Concord, NH 03302
> Tel: (603) 271-0671

[illegible]

Site name/label: SeabrookPOTW
Design case: 15minafterspringlow
FILE NAME: C:\...xZon\rt-18599-NHDES\rt-18599-SeabrookDilution.prd
Time stamp: 01/15/2021--11:20:28

```

Unbounded section
HA      =      7.22  HD      =      7.22
Tidal Simulation at TIME =      0.250 h
PERIOD=     12.40 h UAmax =      0.113 dUa/dt=      0.057 (m/s)/h
UA      =      0.014 F      =      0.037 USTAR =0.9667E-03
UW      =      0.000 UWSTAR=0.0000E+00
Density stratified environment
STRCND=  A      RHOAM = 1023.6000
RHOAS = 1023.3500 RHOAB = 1023.8500 RHOAH0= 1023.6000 E      =0.6633E-03

```

Diffuser type:	DITYPE= unidirectional_parallel				
BANK = RIGHT	DISTB =	313.89	YB1 =	304.80	YB2 = 322.97
LD = 25.71	NOPEN =	20	NRISER=	20	SPAC = 1.35
NPPERR = 1					
D0 = 0.048	A0 =	0.002	H0 =	0.60	SUB0 = 6.62
D0INP = 0.048	CR0 =	1.000	B0 =	0.1332E-02	
Nozzle/port arrangement: unidirectional_without_fanning					
GAMMA = 45.00	THETA =	30.00	SIGMA =	134.90	BETA = 90.00
U0 = 2.188	Q0 =	0.079	Q0A =	0.7886E-01	
RH00 = 997.5393	DRH00 =	0.2606E+02	GP0 =	0.2497E+00	
C0 = 0.1000E+03	CUNITS=	%			
IPOLL = 1	KS =	0.0000E+00	KD =	0.0000E+00	

```

q0      =0.3067E-02      SIGNJ0=      1.0
m0 =U0^2*B0 =0.6376E-02  j0 =U0*GP0*B0 =0.7276E-03  (based on slot width B0)
m0 =U0*q0    =0.6712E-02  j0 =q0*GP0    =0.7659E-03  (based on volume flux q0)
Associated 2-d length scales (meters)
lQ=B   =      0.001 lm   =      0.80  lm   =      32.82
lmp    = 99999.00 lbp   = 99999.00  la    = 99999.00

```

Q0 =0.7886E-01 M0 =0.1639E+00 J0 =0.1871E-01

LQ	=	0.04	LM	=	1.91	Lm	=	29.05	Lb	=	6733.48
						Lmp	=	99999.00	Lbp	=	99999.00
Tidal:			Tu	=	0.3279 h	Lu	=	22.145	Lmin	=	3.673
Tidal Cutoffs (m):			lmax	=	44.373	xmax	=	2.048	ymin	=	298.956

FR0 = 120.00 FRD0 = 20.01 R = 153.02 PL = 57.28
(slot) (port/nozzle)

Properties of riser group with 1 ports/nozzles each:

FLOW CLASSIFICATION

```

C0      =0.1000E+03  CUNITS=  %
NTOX    =  0
NSTD     =  0
REGMZ    =  0
XINT     =   1000.00  XMAX    =   1000.00

```

NSTEP = 10 display intervals per module

END OF MOD101: DISCHARGE MODULE (SINGLE PORT AT DIFFUSER CENTER)

[illegible]

CORMIX SESSION REPORT:

XX

CORMIX MIXING ZONE EXPERT SYSTEM

CORMIX Version 12.0GTR

HYDRO2:Version-12.0.1.0 April,2021

SITE NAME/LABEL: SeabrookPOTW
 DESIGN CASE: 15minafterspringlow
 FILE NAME:

C:\Users\Adi\Desktop\MixZon\rt-18599-NHDES\rt-18599-SeabrookDilution.prd

Using subsystem CORMIX2: Multiport Diffuser Discharges

Start of session: 01/15/2021--11:20:28

SUMMARY OF INPUT DATA:

AMBIENT PARAMETERS:

Cross-section		= unbounded
Average depth	HA	= 7.22 m
Depth at discharge	HD	= 7.22 m
Darcy-Weisbach friction factor	F	= 0.0366
Calculated from Manning's n		= 0.03
Wind velocity	UW	= 0 m/s
TIDAL SIMULATION at time	Tsim	= 0.25 hours
Instantaneous ambient velocity	UA	= 0.0143 m/s
Maximum tidal velocity	UaMAX	= 0.1131 m/s
Rate of tidal reversal	dUA/dt	= 0.0572 (m/s)/hour
Period of reversal	T	= 12.4 hours
Stratification Type	STRCND	= A
Surface density	RHOAS	= 1023.35 kg/m ³
Bottom density	RHOAB	= 1023.85 kg/m ³

DISCHARGE PARAMETERS:

Submerged Multiport Diffuser Discharge

Diffuser type	DITYPE	= unidirectional parallel
Diffuser length	LD	= 25.71 m
Nearest bank		= right
Diffuser endpoints	YB1	= 304.80 m; YB2 = 322.97 m
Number of openings	NOPE	= 20
Number of Risers	NRISER	= 20
Ports/Nozzles per Riser	NPPERR	= 1
Spacing between risers/openings	SPAC	= 1.35 m
Port/Nozzle diameter	D0	= 0.0479 m
with contraction ratio		= 1
Equivalent slot width	B0	= 0.001332 m
Total area of openings	TA0	= 0.0360 m ²
Discharge velocity	U0	= 2.19 m/s
Total discharge flowrate	Q0	= 0.078863 m ³ /s
Discharge port height	H0	= 0.6 m
Nozzle arrangement	BETYPE	= unidirectional without fanning
Diffuser alignment angle	GAMMA	= 45 deg
Vertical discharge angle	THETA	= 30 deg
Actual Vertical discharge angle	THEAC	= 30 deg

Horizontal discharge angle	SIGMA	= 134.90 deg
Relative orientation angle	BETA	= 90 deg
Discharge temperature (freshwater)		= 23 degC
Corresponding density	RHO0	= 997.5393 kg/m^3
Density difference	DRHO	= 26.0607 kg/m^3
Buoyant acceleration	GP0	= 0.2497 m/s^2
Discharge concentration	C0	= 100 %
Surface heat exchange coeff.	KS	= 0 m/s
Coefficient of decay	KD	= 0 /s

FLUX VARIABLES PER UNIT DIFFUSER LENGTH:

Discharge (volume flux)	q0	= 0.003067 m^2/s
Momentum flux		
(based on slot width B0)	m0 = U0^2*B0	= 0.006376 m^3/s^2
(based on volume flux q0)	m0 = U0*q0	= 0.006712 m^3/s^2
Buoyancy flux		
(based on slot width B0)	j0 = U0*GP0*B0	= 0.000728 m^3/s^3
(based on volume flux q0)	j0 = q0*GP0	= 0.000766 m^3/s^3

DISCHARGE/ENVIRONMENT LENGTH SCALES:

LQ = 0.00 m	Lm = 32.82 m	LM = 0.80 m
lm' = 99999 m	Lb' = 99999 m	La = 99999 m

UNSTEADY TIDAL SCALES:

Tu = 0.3279 hours	Lu = 22.14 m	Lmin= 3.67 m
-------------------	--------------	--------------

(These refer to the actual discharge/environment length scales.)

NON-DIMENSIONAL PARAMETERS:

Slot Froude number	FR0	= 120.00
Port/nozzle Froude number	FRD0	= 20.01
Velocity ratio	R	= 153.02

MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:

Toxic discharge	= no
Water quality standard specified	= no
Regulatory mixing zone	= no
Region of interest	= 1000 m downstream

HYDRODYNAMIC CLASSIFICATION:

```

*-----*
| FLOW CLASS   = MU1V |
*-----*

```

This flow configuration applies to a layer corresponding to the full water depth at the discharge site. The ambient density stratification at the discharge site is relatively weak and unimportant so the discharge flow penetrates to the surface and/or breaks down the existing stratification through vigorous mixing.

Applicable layer depth = water depth = 7.22 m

MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

X-Y-Z Coordinate system:

Origin is located at the BOTTOM below the port/diffuser center:
313.88 m from the right bank/shore.
Number of display steps NSTEP = 10 per module.

NEAR-FIELD REGION (NFR) CONDITIONS :

Note: The NFR is the zone of strong initial mixing. It has no regulatory implication. However, this information may be useful for the discharge designer because the mixing in the NFR is usually sensitive to the discharge design conditions.

Pollutant concentration at NFR edge $c = 2.7942 \%$

Dilution at edge of NFR $s = 36.1$

NFR Location: $x = 2.05 \text{ m}$

(centerline coordinates) $y = 1.23 \text{ m}$

$z = 3.21 \text{ m}$

NFR plume dimensions: half-width (bh) = 13.32 m

thickness (bv) = 0.47 m

Cumulative travel time: 12.5057 sec.

Buoyancy assessment:

The effluent density is less than the surrounding ambient water density at the discharge level.

Therefore, the effluent is POSITIVELY BUOYANT and will tend to rise towards the surface.

Stratification assessment:

The specified ambient density stratification is weak relative to the discharge conditions and is dynamically unimportant. The discharge will behave as if the ambient were unstratified.

PLUME BANK CONTACT SUMMARY:

Plume in unbounded section does not contact bank in this simulation.

UNSTEADY TIDAL ASSESSMENT:

Because of the unsteadiness of the ambient current during the tidal reversal, CORMIX predictions have been TERMINATED at:

$x = 2.05 \text{ m}$

$y = 1.23 \text{ m}$

$z = 2.58 \text{ m}$.

For this condition AFTER TIDAL REVERSAL, mixed water from the previous half-cycle becomes re-entrained into the near field of the discharge, increasing pollutant concentrations compared to steady-state predictions. A pool of mixed water formed at slack tide will be advected downstream in this phase.

***** TOXIC DILUTION ZONE SUMMARY *****

No TDZ was specified for this simulation.

***** REGULATORY MIXING ZONE SUMMARY *****

No RMZ and no ambient water quality standard have been specified.

***** FINAL DESIGN ADVICE AND COMMENTS *****

CORMIX2 uses the TWO-DIMENSIONAL SLOT DIFFUSER CONCEPT to represent the actual three-dimensional diffuser geometry. Thus, it approximates the details of the merging process of the individual jets from each port/nozzle.

In the present design, the spacing between adjacent ports/nozzles (or riser assemblies) is of the order of, or less than, the local water depth so that the slot diffuser approximation holds well.

Nevertheless, if this is a final design, the user is advised to use a final CORMIX1 (single port discharge) analysis, with discharge data for an individual diffuser jet/plume, in order to compare to the present near-field prediction.

REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known technique is NOT AN EXACT SCIENCE.

Extensive comparison with field and laboratory data has shown that the CORMIX predictions on dilutions and concentrations (with associated plume geometries) are reliable for the majority of cases and are accurate to within about $\pm 50\%$ (standard deviation).

As a further safeguard, CORMIX will not give predictions whenever it judges the design configuration as highly complex and uncertain for prediction.

**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 Seabrook, New Hampshire

is authorized to discharge from the facility located at

**Seabrook Wastewater Treatment Facility
Wright's Island, Route 286
Seabrook, NH 03874**

to receiving water named

**Gulf of Maine,
Atlantic Ocean**

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

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

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

This permit supersedes the permit issued on August 4, 2010.

This permit consists of **Part I** including the cover page(s), **Attachment A** (Marine Acute Toxicity Test Procedure and Protocol, July 2012), and **Part II** (NPDES Part II Standard Conditions, April 2018).

Signed this day of

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

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

PART I**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

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

Effluent Characteristic	Effluent Limitation			Monitoring Requirements ^{1,2,3}	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type ⁴
Rolling Average Effluent Flow ⁵	1.8 MGD ⁵	---	---	Continuous	Recorder
Effluent Flow ⁵	Report MGD	---	Report MGD	Continuous	Recorder
BOD ₅	30 mg/L 451 lb/day	45 mg/L 676 lb/day	50 mg/L 751 lb/day	2/week	Composite
BOD ₅ Removal	≥ 85 %	---	---	---	Calculate
TSS	30 mg/L 451 lb/day	45 mg/L 676 lb/day	50 mg/L 751 lb/day	2/week	Composite
TSS Removal	≥ 85 %	---	---	---	Calculate
pH Range ⁶	6.5 – 8.0 S.U.			1/day	Grab
Total Residual Chlorine ^{7,8}	240 µg/L	---	420 µg/L	2/day	Grab
<i>Enterococci</i> ^{7,8}	35/100 mL	---	104/100 mL	1/day	Grab
Fecal Coliform ^{7,8}	14/100 mL	---	---	1/day	Grab
Fecal Coliform ^{7,8}	---	---	See footnote 9	1/day	Grab

Effluent Characteristic	Effluent Limitation			Monitoring Requirements ^{1,2,3}	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type ⁴
Whole Effluent Toxicity (WET) Testing^{10,11}					
LC ₅₀	---	---	≥ 100 %	1/quarter	Composite
Ammonia Nitrogen	---	---	Report mg/L	1/quarter	Composite
Total Cadmium	---	---	Report mg/L	1/quarter	Composite
Total Copper	---	---	Report mg/L	1/quarter	Composite
Total Nickel	---	---	Report mg/L	1/quarter	Composite
Total Lead	---	---	Report mg/L	1/quarter	Composite
Total Zinc	---	---	Report mg/L	1/quarter	Composite
Total Organic Carbon	---	---	Report mg/L	1/quarter	Composite

Ambient Characteristic ¹²	Reporting Requirements			Monitoring Requirements ^{1,2,3}	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type ⁴
Ammonia Nitrogen	---	---	Report mg/L	1/quarter	Grab
Total Cadmium	---	---	Report mg/L	1/quarter	Grab
Total Copper	---	---	Report mg/L	1/quarter	Grab
Total Nickel	---	---	Report mg/L	1/quarter	Grab
Total Lead	---	---	Report mg/L	1/quarter	Grab
Total Zinc	---	---	Report mg/L	1/quarter	Grab
Total Organic Carbon	---	---	Report mg/L	1/quarter	Grab
pH ¹³	---	---	Report S.U.	1/quarter	Grab
Temperature ¹³	---	---	Report °C	1/quarter	Grab

Influent Characteristic	Reporting Requirements			Monitoring Requirements ^{1,2,3}	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type ⁴
BOD ₅	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 report the results to the Environmental Protection Agency Region 1 (EPA) and the State of any additional testing above that required herein, if testing is in accordance with 40 C.F.R. Part 136.
2. In accordance with 40 C.F.R. § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 C.F.R. Part 136 or required under 40 C.F.R. chapter I, subchapter N or O, for the analysis of pollutants or pollutant parameters (except WET). A method is “sufficiently sensitive” when: 1) The method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or 2) The method has the lowest ML of the analytical methods approved under 40 C.F.R. Part 136 or required under 40 C.F.R. chapter I, subchapter N or O for the measured pollutant or pollutant parameter. The term “minimum level” refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor.
3. When a parameter is not detected above the ML, the Permittee must report the data qualifier signifying less than the ML for that parameter (e.g., < 50 µg/L, if the ML for a parameter is 50 µg/L). For reporting an average based on a mix of values detected and not detected, assign a value of “0” to all non-detects for that reporting period and report the average of all the results.
4. A “grab” sample is an individual sample collected in a period of less than 15 minutes.

A “composite” sample is a composite of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportional to flow.
5. The limit is a rolling annual average, reported in million gallons per day (MGD), which will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows of the previous eleven months. Also report monthly average and maximum daily flow in MGD.

6. The pH shall be within the specified range at all times. The minimum and maximum pH sample measurement values for the month shall be reported in standard units (S.U.).
7. The Permittee shall minimize the use of chlorine while maintaining adequate bacterial control. Monitoring for total residual chlorine (TRC) is only required for discharges which have been previously chlorinated or which contain residual chlorine.

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 and in accordance with reporting requirements in Part I.G. Special Conditions and Part II Standard Conditions. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.

8. The monthly average limit for *enterococci* and Fecal Coliform are expressed as a geometric mean. *Enterococci* and Fecal Coliform monitoring shall be conducted concurrently with TRC monitoring, if TRC monitoring is required.
9. The Average Monthly value for Fecal Coliform shall be determined by calculating the geometric mean using the daily sample results. As a Daily Maximum, not more than 10 percent of the collected samples (over a monthly period) shall exceed a 31 Colony Forming Units (CFU) per 100 mL for a MF (mTEC) test. Each month the percentage of collected samples that exceeds 31 CFU per 100 mL for the MF (mTEC) test shall be reported at the Daily Maximum value. Furthermore, all Fecal Coliform data collected must be submitted with the monthly Discharge Monitoring Reports (DMRs).
10. The Permittee shall conduct acute toxicity tests (LC₅₀) in accordance with test procedures and protocols specified in **Attachment A** of this permit. LC₅₀ is defined in Part II.E. of this permit. The Permittee shall test the inland silverside minnow, *Menidia beryllina*, and the mysid shrimp, *Mysidopsis bahia*. Toxicity test samples shall be collected and tests completed during the same weeks each time of calendar quarters ending March 31st, June 30th, September 30th, and December 31st. The complete report for each toxicity test shall be submitted as an attachment to the DMR submittal which includes the results for that toxicity test.
11. 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.

12. 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 outside 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.
13. 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 Part 301 or Part 306 of the Clean Water Act if it were directly discharging those pollutants or in a primary industry category (see 40 C.F.R. Part 122 Appendix A as amended) discharging process water; and
 - b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
 - c. For purposes of this paragraph, adequate notice shall include information on:
 - (1) The quantity and quality of effluent introduced into the POTW; and
 - (2) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

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

B. UNAUTHORIZED DISCHARGES

This permit authorizes discharges only from the outfall listed in Part I.A.1, in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit in accordance with Part II.D.1.e.(1) (24-hour reporting). See Part I.H below for reporting requirements.

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 shall 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

The Permittee shall update the 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

The Permittee shall continue to update and implement the Collection System O&M Plan it has previously submitted to EPA and the State. The Plan shall be available for review by federal, state and local agencies as requested. The Plan shall include:

- (1) A description of the collection system management goals, staffing, information management, and legal authorities;
- (2) A description of the collection system and the overall condition of the collection system including a list of all pump stations and a description of recent studies and construction activities; and
- (3) A preventive maintenance and monitoring program for the collection system
- (4) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;

- (5) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;
- (6) Identification of known and suspected overflows and back-ups, including manholes. A description of the cause of the identified overflows and back-ups, corrective actions taken, and a plan for addressing the overflows and back-ups consistent with the requirements of this permit;
- (7) A description of the Permittee's programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts;
- (8) An educational public outreach program for all aspects of I/I control, particularly private inflow; and
- (9) An Overflow Emergency Response Plan to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the permit.

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 monthly average flow exceeded 80 percent of the facility's 1.8 MGD design flow (1.44 MGD) for three consecutive months in the previous calendar year, or there have been capacity related overflows, the report shall include:

- (1) Plans for further potential flow increases describing how the Permittee will maintain compliance with the flow limit and all other effluent limitations and conditions; and
- (2) A calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year.

D. ALTERNATE POWER SOURCE

In order to maintain compliance with the terms and conditions of this permit, the Permittee 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 (Parts 405-415, 417-430, 432, 447, 449-451, 454, 455, 457-461, 463-469, and 471 as amended) who commences discharge to the facility after the effective date of this permit.

This reporting requirement also applies to any other IU who is classified as a Significant Industrial User which discharges an average of 25,000 gallons per day or more of process wastewater into the facility (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastewater which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the facility; or is designated as such by the Control Authority as defined in 40 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)).

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

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. Part 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. Part 503 apply to the following sludge use or disposal practices:
 - a. Land application - the use of sewage sludge to condition or fertilize the soil
 - b. Surface disposal - the placement of sewage sludge in a sludge only landfill
 - c. Sewage sludge incineration in a sludge only incinerator
4. The requirements of 40 C.F.R. Part 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. Part 503 requirements include the following elements:
 - a. General requirements
 - b. Pollutant limitations
 - c. Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
 - d. Management practices
 - e. Record keeping
 - f. Monitoring
 - g. Reporting

Which of the 40 C.F.R. Part 503 requirements apply to the Permittee will depend upon the use or disposal practice followed and upon the quality of material produced by a facility. The EPA Region 1 Guidance document, “EPA Region 1 - NPDES Permit Sludge Compliance Guidance” (November 4, 1999), may be used by the Permittee to assist it in determining the applicable requirements.²

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

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

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 Part 503 requirements is the responsibility of the contractor engaged for that purpose. If the Permittee does not engage a “person who prepares sewage sludge,” as defined in 40 C.F.R. § 503.9(r), for use or disposal, then the Permittee remains responsible to ensure that the applicable requirements in Part 503 are met. 40 C.F.R. § 503.7. If the ultimate use or disposal method is land application, the Permittee is responsible for providing the person receiving the sludge with notice and necessary information to comply with the requirements of 40 C.F.R. § 503 Subpart B.
8. The Permittee shall submit an annual report containing the information specified in the 40 C.F.R. Part 503 requirements (§ 503.18 (land application), § 503.28 (surface disposal), or § 503.48 (incineration)) by **February 19** (*see also* “EPA Region 1 - NPDES Permit Sludge Compliance Guidance”). Reports shall be submitted electronically using EPA’s Electronic Reporting tool (“NeT”) (*see* “Reporting Requirements” section below).
9. Compliance with the requirements of this permit or 40 C.F.R. Part 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. Requirements for POTWs with Effluent Diffusers

- a. Effluent diffusers shall be maintained as necessary to ensure proper operation. Proper operation means that the plumes from each port will be balanced relative to each other and that they all have unobstructed flow. Maintenance may include dredging in the vicinity of the diffuser, clean out of solids in the diffuser header pipe, removal of debris and repair/replacement of riser ports and pinch valves.
- b. Any necessary maintenance dredging must be performed only after receiving all necessary permits from the NHDES Wetlands Bureau and other appropriate agencies.
- c. To determine if maintenance will be required, the Permittee shall have a licensed diver or licensed marine contractor inspect and videotape the operation of the

diffuser. The inspections and videotaping shall be performed in accordance with the following schedule:

- i. Every year if no pinch valves have been installed on the riser ports; or
 - ii. Every 2 years if pinch valves have been installed on the riser ports.
- d. The video of the diffuser inspection and a copy of a report summarizing the results of the inspection shall be submitted to EPA and NHDES-WD on a USB drive within 60 days of each inspection. A schedule for cleaning, repairs, or other necessary maintenance shall be included in the report if the inspection indicates that it is necessary. Necessary cleaning, repairs, or other maintenance should be documented with a photo or video taken after the action is completed.

2. NHDES Shellfish Notification Procedures

The Permittee shall immediately notify the Shellfish Section of NHDES-WD of possible high bacteria/virus loading events from the facility or its sewer collection system. Such events include:

- a. Any lapse or interruption of normal operation of the POTW disinfection system, or other event that results in discharge of sewage from the POTW or sewer infrastructure (pump stations, sewer lines, manholes, etc.) that has not undergone full disinfection as specified in the NPDES permit;
- b. Average daily flows in excess of the POTW's average daily design flow of 1.8 MGD; and
- c. Daily post-disinfection effluent samples of 31 CFU per 100 mL or greater. Notification shall also be made for instances where NPDES-required bacteria sampling is not completed, or where the results of such sampling are invalid.

Notification shall be made using the program's cell phone number. If Shellfish Program staff are not available to answer the phone, leave a message describing the issue or situation and provide your contact information, including phone number. Then, call the Shellfish Program's pager and enter a call back number. Upon initial notification of a possible high bacteria/virus loading event, Shellfish Program staff will determine the most suitable interval for continued notification and updates on an event-by-event basis.

NHDES - Shellfish Program

Cell phone: 603-568-6741

Pager: 603-771-9826

H. REPORTING REQUIREMENTS

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

1. Submittal of DMRs Using NetDMR

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

2. Submittal of Reports as NetDMR Attachments

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

3. Submittal of Biosolids/Sewage Sludge Reports

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

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

- a. The following requests, reports, and information described in this permit shall be submitted to the NPDES Applications Coordinator in EPA Water Division (WD):
 - (1) Transfer of permit notice;
 - (2) Request for changes in sampling location;
 - (3) Report on unacceptable dilution water / request for alternative dilution water for WET testing.
 - (4) Report of new industrial user commencing discharge.
 - (5) Report received from existing industrial user.

- b. These reports, information, and requests shall be submitted to EPA WD electronically at R1NPDESReporting@epa.gov.
5. Submittal of Reports to EPA Enforcement and Compliance Assurance Division (ECAD) in Hard Copy Form
- a. The following notifications and reports shall be signed and dated originals, submitted as hard copy, with a cover letter describing the submission:
 - (1) Prior to 21 December 2020, written notifications required under Part II.B.4.c, for bypasses, and Part II.D.1.e, for sanitary sewer overflows (SSOs). Starting on 21 December 2020, such notifications must be done electronically using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>.
 - b. This information shall be submitted to EPA ECAD at the following address:

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

6. State Reporting

Unless otherwise specified in this permit or by the State, duplicate signed copies of all reports, information, requests or notifications described in this permit, including the reports, information, requests or notifications described in Parts I.H.3 through I.H.5 shall also be submitted to the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) electronically to the Permittee's assigned NPDES inspector at NHDES-WD or as a hardcopy to the following addresses:

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 ECAD at 617-918-1510
and
NHDES Assigned NPDES Inspector at 603-271-1493

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 of, 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 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. 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).
5. Pursuant to New Hampshire Code of Administrative Rules, Env-Wq 703.07(a):
 - a. Any person proposing to construct or modify any of the following shall submit an application for a sewer connection permit to the department:
 - (1) Any extension of a collector or interceptor, whether public or private, regardless of flow;
 - (2) Any wastewater connection or other discharge in excess of 5,000 gpd;
 - (3) Any wastewater connection or other discharge to a WWTP operating in excess of 80 percent design flow capacity or design loading capacity based on actual average flow or loading for 3 consecutive months;

- (4) Any industrial wastewater connection or change in existing discharge of industrial wastewater, regardless of quality or quantity;
 - (5) Any sewage pumping station greater than 50 gpm or serving more than one building; or
 - (6) Any proposed sewer that serves more than one building or that requires a manhole at the connection.
- 6. For each new or increased discharge of industrial waste to the POTW, the Permittee shall submit, in accordance with Env-Wq 305.10(a) an "Industrial Wastewater Discharge Request."
- 7. Pursuant to Env-Wq 305.15(d) and 305.16(f), the Permittee shall not allocate or accept for treatment more than 90 percent of the headworks loading limits of the facility.
- 8. Pursuant to Env-Wq 305.21, at a frequency no less than every five years, the Permittee shall submit to NHDES:
 - a. A copy of its current sewer use ordinance if it has been revised without department approval subsequent to any previous submittal to the department or a certification that no changes have been made.
 - b. A current list of all significant indirect dischargers to the POTW. At a minimum, the list shall include for each significant indirect discharger, its name and address, the name and daytime telephone number of a contact person, products manufactured, industrial processes used, existing pretreatment processes, and discharge permit status.
 - c. A list of all permitted indirect dischargers; and
 - d. A certification that the municipality is strictly enforcing its sewer use ordinance and all discharge permits it has issued.
- 9. When the effluent discharged for a period of three (3) consecutive months exceeds 80 percent of the 1.8 MGD design flow (1.44 MGD) or design loading capacity, the Permittee shall submit to the permitting authorities a projection of flows and loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans. Before the design flow will be reached, or whenever treatment necessary to achieve permit limits cannot be assured, the Permittee may be required to submit plans for facility improvements.

ATTACHMENT A
MARINE 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:

- **2007.0 - Mysid Shrimp (Americamysis bahia) definitive 48 hour test.**
- **2006.0 - Inland Silverside (Menidia beryllina) definitive 48 hour test.**

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

II. METHODS

The permittee shall use the most recent 40 CFR Part 136 methods. Whole Effluent Toxicity (WET) Test Methods and guidance may be found at:

<http://water.epa.gov/scitech/methods/cwa/wet/index.cfm#methods>

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 and receiving water sample shall be collected. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any holding time extension. Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine¹ (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate

¹ For this protocol, total residual chlorine is synonymous with total residual oxidants.
(July 2012)

prior to sample use for toxicity testing. If performed on site the results should be included on the chain of custody (COC) presented to WET laboratory.

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 mg/L chlorine. If dechlorination is necessary, a thiosulfate control consisting of the maximum concentration of thiosulfate used to dechlorinate the sample in the toxicity test control water must also be run in the WET test.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol. Grab samples must be used for pH, temperature, and total residual chlorine (as per 40 CFR Part 122.21).

All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6° C.

IV. DILUTION WATER

Samples of receiving water must be collected from a reasonably accessible location in the receiving water body immediately upstream of the permitted discharge's zone of influence. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2, Test Results & Permit Limits.

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

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

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

If the receiving water is found to be, or suspected to be toxic or unreliable, ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is

species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first case is when repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use by the permittee and toxicity testing laboratory. The second is when two of the most recent documented incidents of unacceptable site dilution water toxicity require ADW use in future WET testing.

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

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

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency, Region 1
Five Post Office Square, Suite 100
Mail Code OEP06-5
Boston, MA 02109-3912

and

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

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

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

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

EPA Region 1 requires tests be performed using four replicates of each control and effluent concentration because the non-parametric statistical tests cannot be used with data from fewer replicates. The following tables summarize the accepted Americamysis and Menidia toxicity test conditions and test acceptability criteria:

EPA NEW ENGLAND EFFLUENT TOXICITY TEST CONDITIONS FOR THE MYSID, AMERICAMYSIS BAHIA 48 HOUR TEST¹

1. Test type	48hr Static, non-renewal
2. Salinity	25ppt \pm 10 percent for all dilutions by adding dry ocean salts
3. Temperature (°C)	20°C \pm 1°C or 25°C \pm 1°C, temperature must not deviate by more than 3°C during test
4. Light quality	Ambient laboratory illumination
5. Photoperiod	16 hour light, 8 hour dark
6. Test chamber size	250 ml (minimum)
7. Test solution volume	200 ml/replicate (minimum)
8. Age of test organisms	1-5 days, <u>\leq 24 hours age range</u>
9. No. Mysids per test chamber	10
10. No. of replicate test chambers per treatment	4
11. Total no. Mysids per test concentration	40
12. Feeding regime	Light feeding using concentrated <u>Artemia</u> naupli while holding prior to initiating the test
13. Aeration ²	None
14. Dilution water	5-30 ppt, +/- 10%; Natural seawater, or deionized water mixed with artificial sea salts
15. Dilution factor	\geq 0.5
16. Number of dilutions ³	5 plus a control. An additional dilution at the permitted effluent concentration (%)

	effluent) is required if it is not included in the dilution series.
17. Effect measured	Mortality - no movement of body appendages on gentle prodding
18. Test acceptability	90% or greater survival of test organisms in control solution
19. Sampling requirements	For on-site tests, samples are used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must be first used within 36 hours of collection.
20. Sample volume required	Minimum 1 liter for effluents and 2 liters for receiving waters

Footnotes:

- ¹ Adapted from EPA 821-R-02-012.
- ² If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks are recommended.
- ³ When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

**EPA NEW ENGLAND TOXICITY TEST CONDITIONS FOR THE INLAND
SILVERSIDE, MENIDIA BERYLLINA 48 HOUR TEST¹**

1. Test Type	48 hr Static, non-renewal
2. Salinity	25 ppt \pm 10 % by adding dry ocean salts
3. Temperature	20°C \pm 1°C or 25°C \pm 1°C, temperature must not deviate by more than 3°C during test
4. Light Quality	Ambient laboratory illumination
5. Photoperiod	16 hr light, 8 hr dark
6. Size of test vessel	250 mL (minimum)
7. Volume of test solution	200 mL/replicate (minimum)
8. Age of fish	9-14 days; 24 hr age range
9. No. fish per chamber	10 (not to exceed loading limits)
10. No. of replicate test vessels per treatment	4
11. Total no. organisms per concentration	40
12. Feeding regime	Light feeding using concentrated <u>Artemia</u> nauplii while holding prior to initiating the test
13. Aeration ²	None
14. Dilution water	5-32 ppt, +/- 10% ; Natural seawater, or deionized water mixed with artificial sea salts.
15. Dilution factor	≥ 0.5
16. Number of dilutions ³	5 plus a control. An additional dilution at the permitted concentration (% effluent) is required if it is not included in the dilution series.
17. Effect measured	Mortality-no movement on gentle prodding.

18. Test acceptability	90% or greater survival of test organisms in control solution.
19. Sampling requirements	For on-site tests, samples must be used within 24 hours of the time they are removed from the sampling device. Off-site test samples must be used within 36 hours of collection.
20. Sample volume required	Minimum 1 liter for effluents and 2 liters for receiving waters.

Footnotes:

- ¹ Adapted from EPA 821-R-02-012.
- ² If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks recommended.
- ³ When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

V.1. Test Acceptability Criteria

If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.

V.2. Use of Reference Toxicity Testing

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

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

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

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

V.2.a. Use of Concurrent Reference Toxicity Testing

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall slightly outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall well outside the established **upper** control limits i.e. ≥ 3 standard deviations for IC25s and LC50 values and \geq two concentration intervals for NOECs or NOAECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

VI. CHEMICAL ANALYSIS

At the beginning of the static acute test, pH, salinity, and temperature must be measured at the beginning and end of each 24 hour period in each dilution and in the controls. The following chemical analyses shall be performed for each sampling event.

<u>Parameter</u>	<u>Effluent</u>	<u>Diluent</u>	<u>Minimum Level for effluent^{*1} (mg/L)</u>
pH	x	x	---
Salinity	x	x	ppt(o/oo)
Total Residual Chlorine ^{*2}	x	x	0.02
Total Solids and Suspended Solids	x	x	---
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
<u>Total Metals</u>			
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

Superscript:

^{*1} These are the minimum levels for effluent (fresh water) samples. Tests on diluents (marine waters) shall be conducted using the Part 136 methods that yield the lowest MLs.

^{*2} Either of the following methods from the 18th Edition of the APHA Standard Methods for the Examination of Water and Wastewater must be used for these analyses:

- Method 4500-Cl E Low Level Amperometric Titration (the preferred method);
- Method 4500-CL G DPD Photometric Method.

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration

An estimate of the concentration of effluent or toxicant that is lethal to 50% of the test organisms during the time prescribed by the test method.

Methods of Estimation:

- Probit Method
- Spearman-Kärber
- Trimmed Spearman-Kärber
- Graphical

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

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

Please note: The NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs) are available on EPA's website at

<http://www.epa.gov/NE/enforcementandassistance/dmr.html>

In addition to the summary sheets the report must include:

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

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

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¹ 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

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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

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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

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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

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- (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

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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

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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.

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- 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

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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

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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

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“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

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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

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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.

LC₅₀ means the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC₅₀ = 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

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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).

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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

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(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

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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

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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.

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

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

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

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

2. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl ₂	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)
TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont.	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M ³ /day	Cubic meters per day
DO	Dissolved oxygen

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

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

FACT SHEET

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

NPDES PERMIT NUMBER: NH0101303

PUBLIC NOTICE START AND END DATES: June 23, 2020 – July 22, 2020

NAME AND MAILING ADDRESS OF APPLICANT:

Town of Seabrook
274 Route 286
Wright's Island
P.O. Box 456
Seabrook, NH 03874

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

The Town of Seabrook Wastewater Treatment Facility
274 Route 286
Wright's Island
Seabrook, NH 03874

RECEIVING WATER AND CLASSIFICATION:

Gulf of Maine, Atlantic Ocean (Hydrologic Basin Code 01060003)
Watershed
Class B

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Appendices

Appendix A – Monitoring Data Summary

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Appendix D - Clean Water Act Section 403(c) Ocean Discharge Act Criteria Evaluation, March 2020

1.0 Proposed Action

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

The permit currently in effect was issued on August 4, 2010 with an effective date of November 1, 2010 and expired on November 1, 2015 (the “2010 Permit”). The Permittee filed an application for permit reissuance with EPA dated April 30, 2015, as required by 40 Code of Federal Regulations (C.F.R.) § 122.6. Since the permit application was deemed timely and complete by EPA on July 27, 2015, the Facility’s 2015 Permit has been administratively continued pursuant to 40 C.F.R. § 122.6 and § 122.21(d). EPA and the State conducted a conference call in lieu of a site visit on March 25, 2020.

The NPDES Permit is issued by EPA under federal law, New Hampshire construes Title L, Water Management and Protection, Chapters 485-A, Water Pollution and Waste Disposal, to authorize the New Hampshire Department of Environmental Services (NHDES) to “consider” a federal NPDES permit to be a State surface water discharge permit. As such, all the terms and conditions of the permit may, therefore, be incorporated into and constitute a discharge permit issued by NHDES.

2.0 Statutory and Regulatory Authority

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

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

2.1 Technology-Based Requirements

Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant reducing technology available and economically achievable for the type of facility being permitted. *See* CWA § 301(b). As a class, publicly owned treatment works (POTWs) must meet performance-based requirements based on available wastewater treatment technology. *See* CWA § 301(b)(1)(B). The performance level for POTWs is referred to as “secondary treatment.” Secondary treatment is comprised of technology-based requirements expressed in terms of BOD₅, TSS and pH. *See* 40 C.F.R. Part 133.

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

2.2 Water Quality Based Requirements

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

2.2.1 Water Quality Standards

The CWA requires that each state develop water quality standards (WQSs) for all water bodies within the State. *See* CWA § 303 and 40 C.F.R. § 131.10-12. Generally, WQSs consist of three parts: 1) the designated use or uses assigned for a water body or a segment of a water body; 2) numeric or narrative water quality criteria sufficient to protect the assigned designated use(s); and 3) antidegradation requirements to ensure that once a use is attained it will not be degraded and to protect high quality and National resource waters. *See* CWA § 303(c)(2)(A) and 40 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.* *See also generally*, N.H. Rev. Stat. Title L, Water Management and Protection, Chapters 485-A, Water Pollution and Waste Disposal.

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

criteria are typically based on lifetime chronic exposure and, therefore, are typically applicable to monthly average limits.

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

2.2.2 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 maintenance of high quality waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water, unless the State finds that allowing degradation is necessary to accommodate important economic or social development in the area in which the waters are located.

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. When NHDES determines that a proposed increase would cause a significant impact to existing water quality, the applicant must provide documentation to demonstrate that the lowering of water quality is necessary, that it 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 reduction in water quality. *See* Env-Wq 1708.10(b).

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

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

The objective of the CWA is to restore and maintain the chemical, physical and biological integrity of the Nation’s waters. To meet this goal, the CWA requires states to develop information on the quality of their water resources and report this information to EPA, the U.S. Congress, and the public. To this end, EPA released guidance on November 19, 2001, for the preparation of an integrated “List of Waters” that could combine reporting elements of both § 305(b) and § 303(d) of the CWA. The integrated list format allows states to provide the status

of all their assessed waters in one list. States choosing this option must list each water body or segment in one of the following five categories: 1) unimpaired and not threatened for all designated uses; 2) unimpaired waters for some uses and not assessed for others; 3) insufficient information to make assessments for any uses; 4) impaired or threatened for one or more uses but not requiring the calculation of a Total Maximum Daily Load (TMDL); and 5) impaired or threatened for one or more uses and requiring a TMDL.

A TMDL is a planning tool and potential starting point for restoration activities with the ultimate goal of attaining water quality standards. A TMDL essentially provides a pollution budget designed to restore the health of an impaired water body. A TMDL typically identifies the source(s) of the pollutant from point sources and non-point sources, determines the maximum load of the pollutant that the water body can tolerate while still attaining WQSs for the designated uses, and allocates that load among to the various sources, including point source discharges, subject to NPDES permits. *See* 40 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 (WLA) for a NPDES permitted discharge, the effluent limitation in the permit must be “consistent with the assumptions and requirements of any available WLA”. 40 C.F.R. § 122.44(d)(1)(vii)(B).

2.2.4 Reasonable Potential

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

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

2.2.5 State Certification

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate the State WQSs, the State waives (or is deemed to have waived), its right to certify. *See* 33 U.S.C.

§ 1341(a)(1). Regulations governing state certification are set forth in 40 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 conditions more stringent than those contained in the Draft Permit are necessary to meet the requirements of either CWA §§ 208(e), 301, 302, 303, 306 and 307 or the applicable requirements of State law, the State should include such conditions in its certification and, in each case, cite the CWA or State law provisions upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. EPA includes properly supported State certification conditions in the NPDES permit. The only exception to this is that the permit conditions/requirements regulating sewage sludge management and implementing CWA § 405(d) are not subject to the State certification requirements. Reviews and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made through the EPA permit appeal procedures of 40 C.F.R. Part 124.

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

It should be noted that under CWA § 401, EPA's duty to defer to considerations of state law is intended to prevent EPA from relaxing any requirements, limitations or conditions imposed by state law. Therefore, "[a] State may not condition or deny a certification on the grounds that State law allows a less stringent permit condition." 40 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 limitations based upon WQS and State requirements are contained in 40 C.F.R. §§ 122.4 (d) and 122.44(d).

2.2.5.1 State Permit Conditions

The Permittee shall maintain the effluent diffuser to ensure proper operation. To determine if maintenance is required the Permittee shall conduct inspections and videotaping of the diffuser. The specifics of the outfall maintenance and inspection requirement can be found Part G.1 of the Permit.

The Permittee shall also immediately notify the Shellfish Section of the NHDES of possible high bacteria counts/virus loading events from the Facility or its collection system. The specifics of the Shellfish Notification requirement can be found in Part G.2 of the Permit.

2.3 Effluent Flow Requirements

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

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

The limitation on wastewater effluent flow is within EPA's authority to condition a permit to carry out the objectives of the Act. *See* CWA §§ 402(a)(2) and 301(b)(1)(C); 40 C.F.R. §§ 122.4(a) and (d); 122.43 and 122.44(d). A condition on the discharge designed to ensure the WQBEL and reasonable potential calculations account for "worst case" conditions is encompassed by the references to "condition" and "limitations" in CWA §§ 402 and 301 and implementing regulations, as they are designed to assure compliance with applicable water quality regulations, including antidegradation. Regulating the quantity of pollutants in the discharge through a restriction on the quantity of wastewater effluent is consistent with the overall structure and purposes of the CWA.

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

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

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

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), (e).

2.4 Monitoring and Reporting Requirements

2.4.1 Monitoring Requirements

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

The monitoring requirements included in this permit have been established to yield data representative of the Facility's discharges in accordance with CWA §§ 308(a) and 402(a)(2), and consistent with 40 C.F.R. §§ 122.41(j), 122.43(a), 122.44(i) and 122.48. The Draft Permit specifies routine sampling and analysis requirements to provide ongoing, representative information on the levels of regulated constituents in the wastewater discharges. The monitoring program is needed to enable EPA and the State to assess the characteristics of the Facility's effluent, whether Facility discharges are complying with permit limits, and whether different permit conditions may be necessary in the future to ensure compliance with technology-based and water quality-based standards under the CWA. EPA and/or the State may use the results of the chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to CWA § 304(a)(1), State water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including, but not limited to, those pollutants listed in Appendix D of 40 C.F.R. Part 122.

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

² Fed. Reg. 49,001 (Aug 19, 2014).

- The method minimum level³ (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or
- In the case of permit applications, the ML is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or parameter in the discharge; or
- The method has the lowest ML of the analytical methods approved under 40 C.F.R. Part 126 or required under 40 C.F.R. chapter I, subchapter N or O for the measured pollutant or pollutant parameter.

2.4.2 Reporting Requirements

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

NetDMR is a national web-based tool enabling regulated CWA permittees to submit DMRs electronically via a secure internet application to EPA through the Environmental Information Exchange Network. NetDMR has eliminated the need for participants to mail in paper forms to EPA under 40 C.F.R. §§ 122.41 and 403.12. NetDMR is accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>. Further information about NetDMR can be found on the EPA NetDMR support portal webpage.⁴

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

2.5 Standard Conditions

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

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

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

2.6 Anti-backsliding

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

All proposed limitations in the Draft Permit are at least as stringent as limitations included in the 2010 Permit unless specific conditions exist to justify relaxation in accordance with CWA § 402(o) or § 303(d)(4). Discussion of any less stringent limitations and corresponding exceptions to anti-backsliding provisions is provided in the sections that follow.

3.0 Description of Facility and Discharge

3.1 Location and Type of Facility

The location of the treatment plant and Outfall 001 to the Gulf of Maine are shown in Figure 1. The longitude and latitude of the outfall are 70° 48' 33" W, 42° 52' 24" N.

The Town of Seabrook Wastewater Treatment Facility is a secondary wastewater treatment facility that is engaged in the collection and treatment of municipal wastewater. Currently, the Facility serves approximately 10,000 residents in the Town of Seabrook.

The Facility has a design flow of 1.8 MGD; the annual average daily flow reported in the 2015 application was 0.680 MGD, and the median for the last 5 years is 0.672 MGD. The system is a separate system with no combined sewers. Wastewater is comprised of mostly domestic sewage and some septage.

The Permittee is not required to have an EPA-approved pretreatment program but does receive industrial flows from several facilities. Seabrook provides active oversight and the three Significant Industrial Users (SIUs) submit discharge monitoring reports directly to EPA bi-annually. There are 4 industrial users that are subject to categorical standards that discharge to the POTW: (1) Seabrook International (2) Nextera Energy (3) Aerodynamics and (4) Martin International Enclosures. There is one non-categorical SIU that discharges to the POTW: Hannah International Food, consisting of 35,000 gpd of process flow and 1,750 gpd non-process flow. Pollutants introduced into POTWs by a non-domestic source shall not pass through the POTW or interfere with the operation or performance of the treatment works. *See* 40 C.F.R. § 403.5(a)(1).

A quantitative description of the discharge in terms of effluent parameters, based on monitoring data submitted by the permittee from October 2014 through September 2019 is provided in Appendix A of this Fact Sheet.

3.1.1 Treatment Process Description

The Town of Seabrook Wastewater Treatment Facility is a secondary wastewater treatment facility with a design flow of 1.8 MGD. Treatment systems include influent screening and grit removal, three oxidation tanks, two final settling tanks, two chlorine contact tanks, dechlorination and sludge processing systems. The treatment facility discharges to the Atlantic Ocean through a 20-port diffuser. The diffuser is approximately 2,100 feet from shore and at a depth of approximately 30 feet below the water surface. A flow diagram of the Treatment Facility is shown in Figure 2. In the near future, the Facility plans to install odor control, but it does not have any imminent plans to upgrade the treatment process otherwise.

Sludge generated at this Facility is dewatered on site. The dewatered sludge cake is transported off-site by a contractor for composting and the filtrate is sent back to the treatment headworks.

3.1.2 Collection System Description

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

4.0 Description of Receiving Water and Dilution

4.1 Receiving Water

The Seabrook WWTF discharges through Outfall 001 into the Atlantic Ocean within segment NHOCN000000000-08-01. This area is 2.657 square miles and adjacent to Seabrook Beach, just north of the New Hampshire/Massachusetts state boundary.

The Atlantic Ocean in the vicinity of the discharge is classified as a Class B 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 waters of this classification shall be considered as being acceptable for fishing, swimming and other recreational purposes and, after adequate treatment, for use as water supplies. Where is demonstrated to the satisfaction of the department that the class B criteria cannot reasonably be met in certain surface waters at all times as a result of combined sewer overflow events, temporary partial use areas shall be established by rules adopted under RSA 485-A:6, XI-c, which meet, as a minimum, the standards specified in paragraph III.

Tidal waters utilized for swimming purposes shall contain not more than either a geometric mean based on at least 3 samples obtained over a 60-day period of 35 enterococci per 100 ml, or 104 enterococci per 100 milliliters in any one sample, unless naturally occurring. Those tidal waters used for growing or taking of shellfish for human consumption shall, in addition to the foregoing requirements, be in accordance with the criteria recommended under the National Shellfish Program Manual of Operation, United States Department of Food and Drug Administration.

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 to do so.

The Atlantic Ocean, segment NHOCN000000000-08-01 is listed in the New Hampshire 2018 303(d) List of Impaired Waters (“303(d) List”) as a Category 5 “Waters Requiring a TMDL.”⁵ The pollutants requiring a TMDL are Polychlorinated biphenyls and Dioxin (including 2,3,7,8-TCDD). This is a regional advisory to all tidal waters in New Hampshire, not specific to the Seabrook discharge. To date, no TMDL has been developed for this segment for any of the listed impairments. The status of each designated use is presented in Table 1.

Table 1: Summary of Designated Uses and Listing Status

Designated Use⁶	Status
Aquatic Life	No Data
Fish Consumption	Impaired (Polychlorinated biphenyls)
Shellfish Consumption ⁷	Impaired (Polychlorinated biphenyls, Dioxin (including 2,3,7,8-TCDD))
Drinking Water Supply After Adequate Treatment	Attaining
Primary Contact Recreation (i.e. swimming)	No Data
Secondary Contact Recreation	No Data
Wildlife	Assessment methodology not developed yet

⁵ State of New Hampshire 2018 Section 303(d) Surface Water Quality List, New Hampshire Department of Environmental Services, August 2019

⁶ State of New Hampshire, 2018 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology, January 2020

⁷ This is a statewide regional advisory, not specific to the Seabrook discharge.

4.2 Ambient Data

Due to a lack of ambient data, ambient concentrations of pollutants were assumed to be zero for reasonable potential analyses.

4.3 Available Dilution

To ensure that discharges do not cause or contribute to violations of WQS under all expected conditions, WQBELs are derived assuming critical conditions for the receiving water.⁸ For tidal waters, the low flow condition shall be equivalent to the conditions that result in a dilution that is exceeded 99% of the time (*See Env-Wq 1705.02(b)*).

The Facility's outfall is located approximately 2,100 feet offshore at a depth of 30 feet below the surface.

The 2010 permit is based on a dilution factor of 72, which was originally based on a CORMIX modeling analysis completed by the Town's consultant in 1999. The Facility modified the diffuser in 2001 by installing pinch valves on each of the 20 diffuser ports. CORMIX modeling by NHDES determined that this change would not affect the dilution factor. Recent CORMIX modeling by NHDES using CORMIX Version 11 resulted in a significant reduction in dilution to 36.⁹ The CORMIX session and prediction files can be found in Appendix B.

5.0 Proposed Effluent Limitations and Conditions

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

EPA notes that the State of New Hampshire adopted new criteria into their WQSs in December 2016 and submitted them to EPA for review and approval. Although the new criteria have not yet been approved by EPA, the Draft Permit is being proposed with effluent limits derived to meet the new criteria in anticipation of a state certification to do so.

5.1 Effluent Limitations and Monitoring Requirements

In addition to the State and Federal regulations described in Section 2, data submitted by the permittee in its permit application, in monthly discharge monitoring reports (DMRs) and in Whole Effluent Toxicity (WET) test reports from October 2014 to September 2019 (the "review period") were used to identify the pollutants of concern and to evaluate the discharge during the effluent limitations development process (*See Appendix A*). Reasonable Potential Analysis is included in Appendix C and results are discussed in the sections below.

⁸ EPA Permit Writer's Manual, Section 6.2.4

⁹ Email. Hayley Franz, DES to Stergios Spanos, DES, January 9, 2020, RE: Dilution Discrepancy with Previous CORMIX Version

5.1.1 Effluent Flow

The Facility has a continuous effluent flow monitoring requirement in its 2010 Permit. The Facility's design flow is 1.8 MGD. If the effluent discharged for a period of three consecutive months exceeds 80 percent of the 1.8 MGD design flow (1.44 MGD), the Permittee must notify EPA and NHDES-WD, and implement a program for maintaining satisfactory treatment levels consistent with approved water quality management plans. Before the design flow will be reached, or whenever treatment necessary to achieve permit limits cannot be assured, the Permittee may be required to submit plans for facility improvements.

The Draft Permit revises the monitoring requirement from the 2010 Permit to include a flow limit of 1.8 MGD, equal to the Facility's design flow. The Draft Permit requires that flow be measured continuously and that the rolling annual average flow, as well as the average monthly and maximum daily flow for each month be reported. The rolling annual average flow is calculated as the average of the flow for the reporting month and 11 previous months.

5.1.2 Biochemical Oxygen Demand (BOD₅)

5.1.2.1 BOD₅ Concentration Limits

The BOD₅ limits in the 2010 Permit were based on the secondary treatment standards in 40 C.F.R. § 133.102; the average monthly limit is 30 mg/L, and the average weekly limit is 45 mg/L. A daily maximum limit of 50 mg/L, based on best professional judgment, is also in the 2010 Permit.

The DMR data during the review period shows that there have been no violations of BOD₅ concentration limits.

The Draft Permit proposes the same BOD₅ concentration limits as in the 2010 Permit as no new wasteload allocations (WLAs) have been established and there have been no changes to the secondary treatment standards. The monitoring frequency remains twice per week.

5.1.2.2 BOD₅ Mass Limits

The mass-based BOD₅ limits in the 2010 Permit of 451 lb/day (average monthly) and 676 lb/day (average weekly) were based on EPA's secondary treatment standards and the design flow of the Facility. A limit of 751 lb/day (daily maximum), based on the concentration-based limit of 50 mg/L and the design flow of the Facility, is also in the 2010 Permit.

The DMR data from the review period shows that there have been no violations of BOD₅ mass limits.

The Draft Permit proposes the same mass-based BOD₅ limits as in the 2010 Permit as no new wasteload allocations (WLAs) have been established; there have been no changes to the secondary treatment standards, and the design flow of the Facility has not changed. The monitoring frequency remains twice per week.

5.1.3 Total Suspended Solids (TSS)

Solids could include inorganic (e.g. silt, sand, clay and insoluble hydrated metal oxides) and organic matter (e.g. flocculated colloids and compounds that contribute to color). Solids can clog fish gills, resulting in an increase in susceptibility to infection and asphyxiation. Suspended solids can increase turbidity in receiving waters and reduce light penetration through the water column or settle to form bottom deposits in the receiving water. Suspended solids also provide a medium for the transport of other adsorbed pollutants, such as metals, which may accumulate in settled deposits that can have a long-term impact on the water column through cycles of re-suspension.

5.1.3.1 TSS Concentration Limits

The TSS limits in the 2010 Permit were based on the secondary treatment standards in 40 C.F.R. § 133.102; the average monthly limit is 30 mg/L, and the average weekly limit is 45 mg/L. A daily maximum limit of 50 mg/L, based on best professional judgment, is also in the 2010 Permit.

The DMR data that was submitted during the review period shows that there have been no violations of TSS concentration limits.

The Draft Permit proposes the same TSS concentration limits as in the 2010 Permit as no new WLAs have been established, and there have been no changes to the secondary treatment standards. The monitoring frequency remains twice per week.

5.1.3.2 TSS Mass Limits

The mass-based TSS limits in the 2010 Permit of 451 lb/day (average monthly) and 676 lb/day (average weekly) were based on EPA's secondary treatment standards and the design flow of the Facility. A mass-based TSS limit of 751 lb/day (daily maximum), based on the concentration-based limit of 50 mg/L and the design flow of the Facility, is also in the 2010 Permit.

The DMR data that were submitted during the review period shows that there have been no violations of TSS mass limits.

The Draft Permit proposes the same mass-based TSS limits as in the 2010 Permit as no new WLAs have been established; there have been no changes to the secondary treatment standards, and the design flow of the Facility has not changed. The monitoring frequency remains twice per week.

5.1.4 Eighty-Five Percent (85%) BOD₅ and TSS Removal Requirement

In accordance with the provisions of 40 C.F.R. § 133.102(a)(3), and (b)(3), the 2010 Permit requires that the 30-day average percent removal for BOD₅ and TSS is not less than 85%. There were no violations of the 85% removal requirement for BOD₅ or TSS during the review period.

The requirement to achieve 85% BOD₅ and TSS removal has been carried forward into the Draft Permit.

5.1.5 pH

The hydrogen ion concentration in an aqueous solution is represented by the pH using a logarithmic scale of 0 to 14 standard units (S.U.). Solutions with pH 7.0 S.U. are neutral, while those with pH less than 7.0 S.U. are acidic and those with pH greater than 7.0 S.U. are basic. Discharges with pH values markedly different from the receiving water pH can have a detrimental effect on the environment. Sudden pH changes can kill aquatic life. The pH can also have an indirect effect on the toxicity of other pollutants in the water.

Consistent with the requirements of New Hampshire's WQS at RSA 485-A:8 II, "The pH for said (Class B) waters shall be 6.5 to 8.0 except when due to natural causes." The monitoring frequency is once per day. The DMR data during the review period show that there have been two violations (September and October 2015) of the pH limitations.

The pH requirements in the 2010 Permit are carried forward into the Draft Permit as there has been no change in the WQSs with regards to pH. The limitations are based on CWA 301(b)(1)(C) and 40 C.F.R. § 122.44(d).

5.1.6 Bacteria

The 2010 Permit includes effluent limits for bacteria using Enterococci bacteria as the indicator bacteria to protect recreational uses. NH WQS at Env-Wq 1700, Appendix E require a monthly geometric mean of 35 Enterococci/100 mL and a maximum daily limit of 104 Enterococci/100 mL. The DMR data that was submitted during the review period shows a single violation of the maximum daily limit in August 2019 (478.6 Enterococci/100 mL).

The Shellfish Program Manual referenced in NH RSA 485-A:8.V includes recommended criteria for either total coliform bacteria or fecal coliform bacteria. Effluent limits were set for fecal coliform bacteria. The Shellfish Program Manual (now known as the National Shellfish Sanitation Program, Guide for the Control of Molluscan Shellfish, 2017 Revision¹⁰) requires that fecal coliform not exceed a geometric mean of most probable number (MPN) or membrane filter (MF) (membrane Thermotolerant *Escherichia Coli* [mTEC]) of 14 per 100 milliliters and not more than 10 percent of the samples exceed:

- MPN of 43 per 100 milliliters for a 5-tube decimal dilution test; or
- MPN of 49 per 100 mL for a 3-tube decimal dilution test; or
- MPN of 28 per 100 mL for a 12-tube single dilution test; or
- 31 colony forming units (CFU) per 100 mL for a MF (mTEC) test.

EPA has included the geometric mean fecal coliform MF (mTEC) of 14 per 100 milliliters as an average monthly geometric mean limit and the requirement that not more than 10 percent of

¹⁰ U.S. FDA, *National Shellfish Sanitation Program, Guide for the Control of Molluscan Shellfish, 2017 Revision*, <https://www.fda.gov/media/117080/download>

samples (over a monthly period) shall exceed 31 CFU per 100 mL for a MF (mTEC) test as the daily maximum limit. The MF (mTEC) test is applied because it is a 24-hour method versus the other three methods which can take up to 7 days. EPA is soliciting comments during the Public Notice period regarding whether one of the other three options listed above would be preferable. The sampling frequency is once per day.

The Draft Permit proposes maintaining the effluent limits for Enterococci and fecal coliform bacteria in the 2010 Permit except for the daily maximum fecal coliform bacteria limit which has been changed to reflect the MF (mTEC) standard in the NSSP Manual.

5.1.7 Total Residual Chlorine

The Permittee uses sodium hypochlorite for disinfection. The 2010 Permit includes effluent limitations for total residual chlorine (TRC) of 0.54 mg/L (monthly average) and 0.94 mg/L (maximum daily). The DMR data during the review period show that there have been no violations of the TRC limitations.

The TRC permit limits are based on the instream chlorine criteria defined in *National Recommended Water Quality Criteria: 2002*, EPA 822R-02-047 (November 2002), as adopted by the New Hampshire Code of Administrative Rules, Env-Wq 1703.21 and Table 1703.1. These marine instream criteria for chlorine are 7.5 µg/L (chronic) and 13 µg/L (acute). The ambient chlorine is assumed to be zero in this case, the water quality-based chlorine limits are calculated as the criteria times the dilution factor, as follows:

Chronic criteria * dilution factor * 10% reserve capacity = Chronic limit
 $7.5 \mu\text{g/L} * 36 * 0.9 = 243 \mu\text{g/L} = 0.24 \text{ mg/L}$ (average monthly)

Acute criteria * dilution factor * 10% reserve capacity = Acute limit
 $13 \mu\text{g/L} * 36 * 0.9 = 421 \mu\text{g/L} = 0.42 \text{ mg/L}$ (maximum daily)

These limits are more stringent than in the 2010 Permit due to the revised dilution factor. These limits are included in the Draft Permit. The sampling frequency is twice per day, which is the same as in the 2010 Permit.

5.1.8 Ammonia

Nitrogen in the form of ammonia can reduce the receiving waters dissolved oxygen concentration through nitrification and can be toxic to aquatic life, particularly at elevated temperatures. The toxicity level of ammonia in marine waters depends on the temperature, pH and salinity of the receiving water.¹¹ The applicable ammonia water quality criteria are pH and temperature dependent and can be derived using EPA-recommended ammonia criteria from the document: *Ambient Water Quality Criteria for Ammonia (Saltwater)*, 1989 (EPA 440/5-88-004). These are the marine ammonia criteria in EPA's *National Recommended Water Quality Criteria*,

¹¹ Environmental Protection Agency (EPA), "Ambient Water Quality Criteria for Ammonia (Saltwater)-1989", pages 3-4.

2002 (EPA 822-R-02-047) document, which are included in the NH WQS (*See Env-Wq 1703.28 and 1703.31*).

The 2010 Permit does not include ammonia limits but does require quarterly effluent ammonia monitoring as part of the WET testing. Effluent data that was submitted for the review period indicate a median concentration for the warm weather period (May 1 through October 31) is 0.22 mg/L and for the cold weather period (November 1 through April 30) is 0.71 mg/L.

EPA assumes an ambient pH of 7.5 S.U., ambient salinity of 30 ppt and ambient temperatures of 20° C for the warm weather period and 5° C for the cold weather period.¹² Based on these assumptions, the applicable ammonia criteria were determined from the tables in the WQS, interpolating between values as necessary, and are presented in Appendix C.

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

Based on the analysis in Appendix C, there is not reasonable potential for ammonia to cause an exceedance of the acute or chronic water quality criteria for either the warm weather or cold weather seasons. The Draft Permit will require effluent and ambient monitoring for ammonia to be conducted in conjunction with the WET tests in accordance with EPA's *Marine Acute Toxicity Test Procedure and Protocol*, (July 2012).

5.1.9 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 cadmium, copper, lead, nickel and zinc given the chemical characteristics of the receiving water. A summary of recent metals monitoring results from the Facility's Whole Effluent Toxicity tests is provided in Appendix A.

5.1.9.1 Applicable Metals Criteria

State water quality criteria for cadmium, copper, lead, nickel and zinc are established in terms of dissolved metals. However, many inorganic components of domestic wastewater, including metals, are in particulate form, and differences in the chemical composition between the effluent and the receiving water affects the partitioning of metals between the particulate and dissolved fractions as the effluent mixes with the receiving water, often resulting in a transition from the particulate to dissolved form (*The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion* (USEPA 1996 [EPA-823-B96-007])). Consequently, quantifying only the dissolved fraction of metals in the effluent prior to discharge

¹² New Hampshire Department of Environmental Services (NHDES), "EMD Results - Station ID ACB1." Retrieved from https://www4.des.state.nh.us/gis/emd_results/?id=ACB1 on March 30, 2020

may not accurately reflect the biologically-available portion of metals in the receiving water. Regulations at 40 C.F.R. § 122.45(c) require, with limited exceptions, that effluent limits for metals in NPDES permits be expressed as total recoverable metals.

The criteria for cadmium, copper, lead, nickel and zinc are presented in Appendix C based on EPA's National Recommended Water Quality Criteria: 2002, as adopted by the New Hampshire Code of Administrative Rules, Env-Wq 1703.21 and Table 1703.1.

5.1.9.2 Reasonable Potential Analysis and Limit Derivation

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

The Draft Permit does not require any permit limit based on the result of the reasonable potential analysis shown in Appendix C. Effluent and ambient monitoring for metals will be required as part of the WET tests, as described below.

5.1.9.3 Arsenic

Arsenic is a naturally occurring element that is found in combination with either inorganic or organic substances to form many different compounds. Inorganic arsenic compounds are found in soils, sediments, and groundwater. These compounds occur either naturally or as a result of mining, ore smelting, and industrial use of arsenic. Organic arsenic compounds are found mainly in fish and shellfish. In the past, inorganic forms of arsenic were used in pesticides and paint pigment. They were also used as wood preservatives and as a treatment for a variety of ailments.¹³

The arsenic water quality criteria is defined in the *National Recommended Water Quality Criteria: 2002*, EPA 822R-02-047 (November 2002), as adopted by the New Hampshire Code of Administrative Rules, Env-Wq 1703.21 and Table 1703.1. The instream criterion for arsenic is 140 ng/L (0.140 µg/L) and is applicable to inorganic arsenic. There can be no violation of this inorganic arsenic concentration in the receiving water, pursuant to Env-Wq 1703.21(b).

The 2010 Permit includes a monthly average and maximum daily monitoring and reporting requirement for total recoverable arsenic. Attachment A shows the median monthly average concentration as 0.8 µg/L and a median maximum daily of 1 µg/L during the review period. The 95th percentile of the arsenic data is 1.7 µg/L for both the monthly average and maximum daily data. Using this information, EPA calculated the worst-case arsenic concentration after dilution to be 0.047 µg/L (1.7 µg/L divided by the Facility's dilution factor of 36), which is less than the inorganic arsenic criterion; so there is no reasonable potential for arsenic to cause or contribute to an excursion of the water quality standards.

¹³ Department of Health and Human Services. (November 2009). *Fact Sheet on Arsenic*. Retrieved from https://www.epa.gov/sites/production/files/2014-03/documents/arsenic_factsheet_cdc_2013.pdf

Therefore, the Draft Permit does not require any permit limits for arsenic and the monitoring requirement has been removed.

5.1.10 Whole Effluent Toxicity

CWA §§ 402(a)(2) and 308(a) provide EPA and States with the authority to require toxicity testing. Section 308 specifically describes biological monitoring methods as techniques that may be used to carry out objectives of the CWA. WET testing is conducted to ensure that the additivity, antagonism, synergism and persistence of the pollutants in the discharge do not cause toxicity, even when the pollutants are present at low concentrations in the effluent. The inclusion of WET requirements in the Draft Permit will assure that the Facility does not discharge combinations of pollutants into the receiving water in amounts that would be toxic to aquatic life or human health.

In addition, under CWA § 301(b)(1)(C), discharges are subject to effluent limitations based on WQSs. Under CWA §§ 301, 303 and 402, EPA and the States may establish toxicity-based limitations to implement the narrative water quality criteria calling for “no toxics in toxic amounts”. *See also* 40 C.F.R. § 122.44(d)(1). New Hampshire statutes 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 1703.21(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, reasonable potential may exist for this discharge to cause or contribute to an exceedance of the “no toxics in toxic amounts” narrative water quality standard.

In accordance with current EPA guidance, whole effluent chronic effects are regulated by limiting the highest measured continuous concentration of an effluent that causes no observed chronic effect on a representative standard test organism, known as the chronic No Observed Effect Concentration (C-NOEC), and whole effluent acute effects are regulated by limiting the concentration that is lethal to 50% of the test organisms, known as the LC₅₀. This policy recommends that permits for discharges having a dilution factor between 20 and 100 require acute toxicity testing four times per year for two species and the LC₅₀ limit should be greater than or equal to 100% effluent. The acute WET limit in the 2010 Permit is LC₅₀ greater than or equal to 100%, respectively, using the inland silverside minnow (*Menidia beryllina*) and the mysid shrimp (*Mysidopsis bahia*) as the test species.

Based on the potential for toxicity from domestic and industrial contributions, the state narrative water quality criterion, a revised dilution factor of 36, and in accordance with EPA national and regional policy and 40 C.F.R. § 122.44(d), the Draft Permit continues the WET effluent limit and requirements from the 2010 Permit, including the use of inland silverside minnow (*Menidia beryllina*) and the mysid shrimp (*Mysidopsis bahia*) as test species, and a test frequency of

quarterly. All of the WET tests during the review period achieved the effluent limit of greater than or equal to 100% and the toxicity test results are shown in Appendix A.

The WET test must be performed in accordance with the updated EPA Region 1 WET test procedures and protocols specified in Attachment A, *Marine Acute Toxicity Test Procedure and Protocol (July 2012)*, of the Draft Permit.

5.2 Sludge Conditions

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

5.3 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 shall develop an I/I removal program commensurate with the severity of I/I in the collection system. This program may be scaled down in sections of the collection system that have minimal I/I.

5.4 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 compliance with permit conditions. The requirements at 40 C.F.R. § 122.41(d) impose a ‘duty to mitigate,’ which requires the permittee to “take all reasonable steps to minimize or prevent any discharge in violation of the permit that has a reasonable likelihood of adversely affecting human health or the environment. 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.

5.5 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.

6.0 Federal Permitting Requirements

6.1 Ocean Discharge Act

EPA has determined that the Seabrook WWTF is seaward of the territorial sea baseline and, therefore is subject to the requirements of Section 403 of the Clean Water Act (CWA). Prior to Draft Permit development, as required by Section 403(c) of the CWA, EPA assessed the effect of Seabrook's WWTF effluent on diversity, productivity and stability of the ocean's ecosystem in the vicinity of the outfall. On the basis of the limited available information, EPA determined that the treatment plant discharge, as regulated by this permit, should not cause unreasonable degradation of the marine environment. This determination was made in accordance with 40 C.F.R. § 125, Subpart M (Ocean Discharge Criteria) and a summary of EPA's findings is included in Appendix D.

As required by 40 C.F.R. § 125.123(d)(4), the Draft Permit contains a clause stating that the permit will be modified or revoked at any time if new data indicates that there may be unreasonable degradation of the marine environment.

6.2 Endangered Species Act

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

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

The Federal action being considered in this case is EPA's proposed NPDES permit for the Seabrook WWTF, which discharges through Outfall 001 into the Gulf of Maine, Atlantic Ocean at latitude 42° 52' 24" N, longitude 70° 48' 33" W. The portion of the Gulf of Maine receiving the discharge is located adjacent to Seabrook Beach. This is identified as Segment NHOCN-000000000-08-01 and covers an area of 2.657 square miles. The outfall is approximately 2,100 feet offshore and located close to the seafloor. At high tide, the outfall is 30 feet depth. Generally, the Gulf of Maine has a mean depth of 417 feet, but 25% of the Gulf is less than 210 feet deep.

As the federal agency charged with authorizing the discharge from this Facility, EPA determined 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, wildlife, and plants in the expected action area of the outfall to determine if EPA's proposed NPDES permit could potentially impact any such listed species.

For protected species under jurisdiction of the USFWS¹⁴, three listed shore bird species have been documented in the general area of the discharge around Seabrook Beach. The birds are the piping plover (*Charadrius melodus*), the rufa red knot (*Calidris canutus rufa*), both listed as threatened, and the roseate tern (*Sterna dougallii*), listed as endangered.

The piping plover is found along coastal sand and gravel beaches in the northeast from March to August. They eat mainly insects, marine worms and crustaceans. The population is threatened from habitat loss and degradation due to coastal development and stabilization, as well as predation and human disturbance.

The rufus red knot can be seen along the coast of New Hampshire in the spring and fall, as it migrates from summer breeding grounds on the tundra of the Canadian arctic to wintering sites in South America and the southern US. This bird is one of the longest-distance migrants in the animal kingdom. It feeds on invertebrates, especially small clams, mussels, and snails, but also crustaceans, marine worms, and horseshoe crab. Pressures on the species include coastal development and overharvest of the horseshoe crab.

The Roseate tern can be found on small barrier islands in the northeast North America, often at ends or breaks along a beach and almost always nest in colonies with common terns. Roseate terns are found in coastal New Hampshire and Massachusetts from the end of April until late August to early September. The bird eats small fish, primarily the American sand lance. The population has been greatly reduced by human activity and development on barrier islands, predation, and competition from expanding numbers of large gulls.

The outfall point from the Facility is in an established, deep, offshore location and does not disturb the shoreline habitat of these three birds. In addition, the discharge does not come in contact with the intertidal fish, worms and crustaceans that these birds feed on. Based on this

¹⁴ See USFWS Information for Planning and Consultation Mapper for more information:
<https://ecos.fws.gov/ipac/location/index>

assessment, EPA has determined that these USFWS federally protected shorebird species, as well as their prey, are not present in the action area. Therefore, consultation with USFWS under Section 7 of the ESA is not required.

Regarding protected species under the jurisdiction of NOAA Fisheries¹⁵, a number of anadromous and marine species and life stages are present in coastal New Hampshire and Massachusetts waters. Various life stages of the following fish, sea turtles and whales have been documented in these near shore waters: Atlantic sturgeon (*Acipenser oxyrinchus*) adult and subadult life stages, shortnose sturgeon (*Acipenser brevirostrom*) adults, protected sea turtles such as adult and juvenile life stages of leatherback sea turtles (*Dermochelys coriacea*), loggerhead sea turtles (*Caretta caretta*), Kemp's ridley sea turtles (*Lepidochelys kempii*) and green sea turtles (*Chelonia mydas*), along with adult and juvenile life stages of North Atlantic right whales (*Eubalaena glacialis*) and fin whales (*Balaenoptera physalus*). In addition, this coastal area has been designated as critical habitat for North Atlantic right whale feeding.

These protected species life stages, as well as the listed North Atlantic right whale critical habitat, are likely influenced by the discharge from this Facility. Because these species may be affected by the discharge authorized by the proposed permit, EPA has evaluated the potential impacts of the permit action on these anadromous and marine species. On the basis of the evaluation, EPA's preliminary determination is that this action may affect, but is not likely to adversely affect, the relevant life stages of the NOAA Fisheries listed species above that are expected to inhabit the immediate coast near Seabrook Beach in the vicinity of the action area of the discharge. In addition, EPA has made the preliminary determination that the proposed action may affect, but is not likely to adversely affect, the designated North Atlantic right whale critical habitat that overlaps the action area.

Therefore, EPA has judged that a formal consultation pursuant to Section 7 of the ESA is not required. EPA is seeking concurrence from NOAA Fisheries regarding this determination through the information in the Draft Permit, this Fact Sheet, as well as a letter that will be sent to NOAA Fisheries Protected Resources Division under separate cover.

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

Initiation of consultation is required and shall be requested by the EPA or by NOAA Fisheries where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the analysis; (b) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this analysis; or (c) If a new species is listed or critical habitat designated that may be affected by the identified action. No take is anticipated or exempted. If there is any incidental take of a listed species, initiation of consultation would be required.

¹⁵ See NOAA: ESA Section 7 Mapper for more information:

<https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27>

6.3 Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (*see* 16 U.S.C. § 1801 *et seq.*, 1998), EPA is required to consult with the NOAA Fisheries if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat." 16 U.S.C. § 1855(b).

The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." 16 U.S.C. § 1802(10). "Adverse impact" means any impact that reduces the quality and/or quantity of EFH 50 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), or site specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. EFH is only designated for fish species for which federal Fisheries Management Plans exist. *See* 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

A review of the relevant essential fish habitat information provided by NOAA Fisheries¹⁶ indicates that the outfall exists within designated EFH for 27 federally managed species and one Habitat Area of Particular Concern. The EFH species and life stages are listed in Table 2.

Table 2: EFH Species and life stages in the vicinity of Seabrook WWTF Outfall

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

¹⁶ See NOAA: Essential Fish Habitat (EFH) Mapper for more information:
<https://www.habitat.noaa.gov/application/efhmapper/index.html>

Species/Management Unit	Lifestage(s) Found at Location
American Plaice	Adult, Juvenile
Bluefin Tuna	Adult
Porbeagle Shark	ALL
Northern Shortfin Squid	Adult
Longfin Inshore Squid	Juvenile, Adult
Atlantic Mackerel	Eggs, Larvae, Juvenile
Bluefish	Adult, Juvenile
Atlantic Butterfish	Adult, Juvenile
Spiny Dogfish	Sub-Adult Female, Adult Male, Adult Female
Atlantic Surfclam	Juvenile, Adult
HAPC Name	
Inshore 20m Juvenile Cod	

6.3.1 EPA's Finding of all Potential Impacts to EFH Species

- This Draft Permit action does not constitute a new source of pollutants. It is the reissuance of an existing NPDES permit;
- The effluent is discharged at a depth of 30 feet through a 20-port diffuser, which facilitates mixing;
- The Facility withdraws no water from the coastal waters of the Gulf of Maine, so no life stages of EFH species are vulnerable to impingement or entrainment;
- Acute toxicity tests will be conducted four times a year to ensure that the discharge does not present toxicity problems;
- The effluent has a dilution factor of 36;
- Total suspended solids, biochemical oxygen demand, total residual chlorine, fecal coliform, Enterococci and pH are regulated by the Draft Permit to meet water quality standards;
- The Draft Permit prohibits the discharge of pollutants or combination of pollutants in toxic amounts;
- The effluent limitations and conditions in the Draft Permit were developed to be protective of all aquatic life; and
- The Draft Permit prohibits violations of the state water quality standards.

EPA believes that the conditions and limitations contained within the Seabrook Wastewater Treatment Facility Draft Permit adequately protect all aquatic life, including those

species with designated EFH in the receiving water, as well as the Habitat Area of Particular Concern. Further mitigation is not warranted. Should adverse impacts to EFH be detected as a result of this permit action, or if new information is received that changes the basis for EPA's conclusions, NOAA Fisheries will be contacted and an EFH consultation will be re-initiated. At the beginning of the public comment period, EPA notified NOAA Fisheries Habitat Division that the Draft Permit and Fact Sheet were available for review and provided a link to the EPA NPDES Permit website to allow direct access to the documents.

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

6.4 Coastal Zone Management (CZM) Consistency Review

The regulation at 40 C.F.R. § 122.49(d) states "The Coastal Zone Management Act, 16 U.S.C. 1451 et seq. section 307(c) of the Act and implementing regulations (15 C.F.R. part 930) prohibit EPA from issuing a permit for an activity affecting land or water in the coastal zone until the applicant certifies that the proposed activity complies with the State Coastal Zone Management program, and the State or its designated agency concurs with the certification (or the Secretary of Commerce) overrides the State's nonconcurrence.

The discharge is within the defined CZM boundaries. The Permittee has submitted a letter dated April 15, 2020 to the New Hampshire Coastal Program stating their intention to abide by the CZM water quality and habitat policies. EPA expects that the NH Coastal Program will find the discharge consistent with its policies.

7.0 Public Comments, Hearing Requests and Permit Appeals

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to:

Michele Barden
EPA Region 1
5 Post Office Square, Suite 100 (06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1539
Email: barden.michele@epa.gov

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

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

8.0 Administrative Record

The administrative record on which this Draft Permit is based may be accessed at EPA's Boston office by appointment, Monday through Friday, excluding holidays from Michele Barden, EPA Region 1, 5 Post Office Square, Suite-100 (06-1), Boston, MA 02109-3912 or via email to barden.michele@epa.gov.

June 2020
Date

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

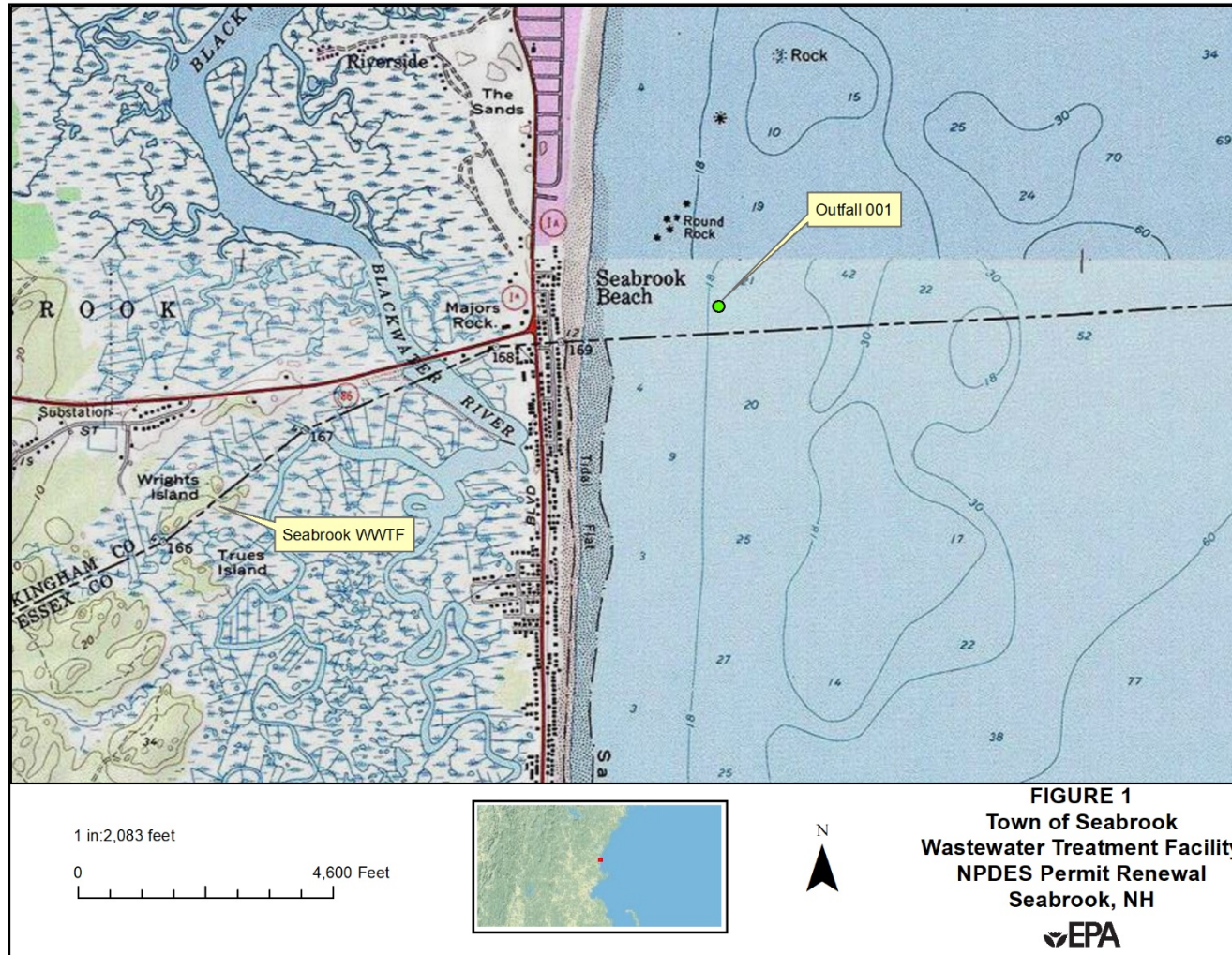
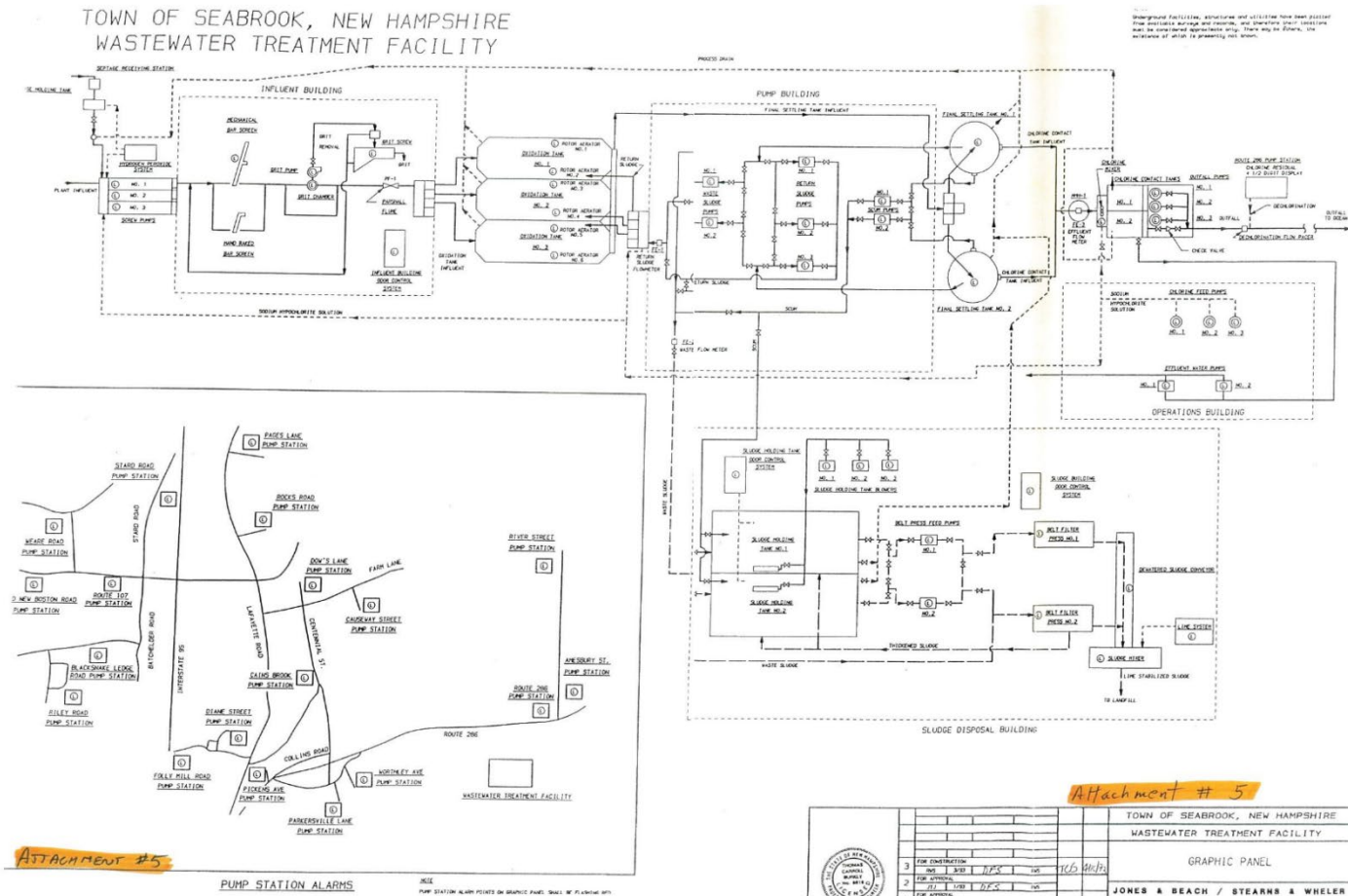
Figure 1: Location of the Seabrook Wastewater Treatment Facility

Figure 2: Seabrook Wastewater Treatment Facility Flow Diagram



Outfall - Monitoring Location - Limit Set: 001 - 1 - A

Parameter	Flow	Flow	BOD5	BOD5	BOD5	BOD5	BOD5	BOD5
	Monthly Ave	Daily Max	Monthly Ave	Monthly Ave	Weekly Ave	Weekly Ave	Daily Max	Daily Max
Units	MGD	MGD	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L
Effluent Limit	Report	Report	451	30	676	45	751	50
Minimum	0.562	0.6359	16	3.2	28	4.8	27	4.7
Maximum	0.832	1.324	143	23.1	189	31	333	48
Median	0.6715	0.81425	47.5	8.3	61.5	10.85	86	15.35
No. of Violations	N/A	N/A	0	0	0	0	0	0
10/31/2014	0.589	0.7721	39	7.8	52	10.3	62	11.8
11/30/2014	0.583	0.667	78	15.4	89	18.1	117	23
12/31/2014	0.769	1.324	86	13.2	119	18.8	148	23.4
1/31/2015	0.618	0.8294	79	15.1	91	15.7	135	23.5
2/28/2015	0.63	0.7859	122	22.2	135	25.9	175	30.3
3/31/2015	0.688	0.8478	124	21.4	148	24.2	181	29.7
4/30/2015	0.766	0.9155	143	22.6	179	26.4	233	32.4
5/31/2015	0.623	0.755	119	23.1	151	31	204	43
6/30/2015	0.686	0.8166	107	18.2	113	19.1	216	33
7/31/2015	0.755	0.8535	123	19	129	18.6	295	45.3
8/31/2015	0.745	0.8566	133	20.2	189	29.2	333	48
9/30/2015	0.649	0.7671	86	15	124	20.9	210	36
10/31/2015	0.599	0.823	74	14.1	117	21.9	238	43.3
11/30/2015	0.562	0.6715	39	8	52	10.9	103	21.1
12/31/2015	0.596	0.6884	36	6.9	44	8.4	85	16.4
1/31/2016	0.64	0.7325	39	7.1	52	8.7	87	14.2
2/29/2016	0.654	0.952	51	10.1	62	10.4	121	20.4
3/31/2016	0.658	0.7942	52	9.2	74	13.1	127	22.6
4/30/2016	0.615	0.719	32	6.3	39	7.8	58	11.6
5/31/2016	0.612	0.847	42	8	57	11.2	118	21.3
6/30/2016	0.658	0.782	62	11.1	71	13	122	22
7/31/2016	0.722	0.8628	73	11.4	99	15.8	198	29.2
8/31/2016	0.709	0.9868	42	6.8	70	10.8	115	17.2
9/30/2016	0.601	0.86	27	5.2	39	7	63	10.9
10/31/2016	0.597	0.682	33	6.5	39	7.5	60	10.6
11/30/2016	0.595	0.6742	38	7.3	48	7.7	48	9.3
12/31/2016	0.625	0.737	44	8.4	51	9.5	56	10
1/31/2017	0.666	0.871	70	11.8	72	12.1	120	20.2

Outfall - Monitoring Location - Limit Set: 001 - 1 - A

Parameter	Flow	Flow	BOD5	BOD5	BOD5	BOD5	BOD5	BOD5
	Monthly Ave	Daily Max	Monthly Ave	Monthly Ave	Weekly Ave	Weekly Ave	Daily Max	Daily Max
Units	MGD	MGD	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L
Effluent Limit	Report	Report	451	30	676	45	751	50
2/28/2017	0.701	0.9317	103	17	113	20.5	136	26.6
3/31/2017	0.699	0.794	119	20.3	127	23.7	148	24.8
4/30/2017	0.832	1.1344	82	11.7	98	14.9	134	16
5/31/2017	0.801	0.9668	68	10.4	75	12.8	85	15
6/30/2017	0.777	0.93	71	10.9	75	10.9	124	16.9
7/31/2017	0.766	0.832	102	15.8	143	21.9	161	24.7
8/31/2017	0.742	0.858	60	9.4	71	10.9	82	12.4
9/30/2017	0.674	0.7637	29	5.1	43	7.1	51	8.9
10/31/2017	0.613	0.7228	35	6.6	50	9	58	10
11/30/2017	0.571	0.6396	27	5.6	40	8.5	42	8.9
12/31/2017	0.602	0.7231	30	5.9	36	7	44	7.7
1/31/2018	0.7	0.8119	51	8.8	57	9.8	65	10.5
2/28/2018	0.68	0.9074	44	7.7	50	8.9	59	9.4
3/31/2018	0.729	0.8107	49	8.1	56	9.1	63	10.6
4/30/2018	0.71	0.9038	59	9.6	98	13.8	115	15.7
5/31/2018	0.696	0.839	46	7.8	64	10.1	67	11.4
6/30/2018	0.685	0.8105	42	7.2	61	10.5	60	8.9
7/31/2018	0.727	0.9457	74	12.2	93	14.5	103	16.1
8/31/2018	0.738	0.8612	37	6	59	9.6	72	11.1
9/30/2018	0.678	0.8813	20	3.5	28	4.8	27	4.7
10/31/2018	0.645	0.7385	27	4.8	33	6.2	42	7.6
11/30/2018	0.747	1.0749	34	5.5	40	5.8	43	7
12/31/2018	0.693	0.9135	28	4.8	43	7	42	7.8
1/31/2019	0.631	1.0083	43	8.2	56	10.9	94	19
2/28/2019	0.658	0.7869	40	6.3	40	7.5	44	7.8
3/31/2019	0.68	0.7968	54	9.1	66	11	73	12.7
4/30/2019	0.669	0.8427	41	7.2	52	9.2	70	12.5
5/31/2019	0.669	0.7981	57	10.6	80	18.2	94	21.4
6/30/2019	0.6153	0.719	38	7	42	7.5	54	9.9
7/31/2019	0.7106	0.7754	45	7.5	55	9	81	13.2
8/31/2019	0.6878	0.7882	29	5.3	50	8.3	64	10.4
9/30/2019	0.5882	0.6359	16	3.2	45	9	49	9.8

Outfall - Monitoring Location - Limit Set: 001 - 1 - A

Parameter	BOD5	TSS	TSS	TSS	TSS	TSS	TSS	TSS
	Minimum	Monthly Ave	Monthly Ave	Weekly Ave	Weekly Ave	Daily Max	Daily Max	Minimum
Units	%	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	%
Effluent Limit	85	451	30	676	45	751	50	85
Minimum	0.562	11	2	0.6359	2.9	19	3.3	92
Maximum	0.832	123	20.5	1.324	25.1	191	32.9	99
Median	0.6715	32	5.45	0.81425	7.55	56	9.25	98
No. of Violations	60	0	0	0	0	0	0	0
10/31/2014	98	16	3.2	21	3.7	30	6	99
11/30/2014	95	31	6.2	39	7.7	62	11.7	98
12/31/2014	95	49	7.1	82	8.7	141	12.8	97
1/31/2015	95	39	7.6	43	8.6	60	10.3	97
2/28/2015	92	66	12.1	74	14.7	92	15.6	95
3/31/2015	93	70	11.9	78	13.9	119	18.1	95
4/30/2015	93	64	10.1	69	12.2	102	14.5	97
5/31/2015	94	43	8.2	64	10.9	74	12.5	97
6/30/2015	94	37	6.5	46	8.1	58	11.6	98
7/31/2015	94	46	7.1	46	7.5	78	12	98
8/31/2015	94	49	7.5	68	10.5	69	10	97
9/30/2015	95	36	6.3	50	8.7	114	18.9	98
10/31/2015	96	27	5.2	35	6.2	41	7.4	98
11/30/2015	98	13	2.6	20	3.7	26	4.6	99
12/31/2015	98	16	3	30	5.5	54	10	99
1/31/2016	98	16	2.8	17	3.1	27	4.8	99
2/29/2016	97	25	4.5	34	5.2	43	6.5	98
3/31/2016	97	22	3.8	29	5.1	35	6.3	98
4/30/2016	98	19	3.6	24	4.4	42	7	99
5/31/2016	98	21	4.1	29	5.5	48	9	99
6/30/2016	97	24	4.4	32	5.8	38	7	99
7/31/2016	97	26	4.1	43	6.6	54	8.1	99
8/31/2016	98	16	2.6	18	3.1	27	4.2	99
9/30/2016	99	13	2.6	16	2.9	24	4.4	99
10/31/2016	98	13	2.6	18	3.7	22	4.2	99
11/30/2016	98	16	3	19	3.6	27	4.8	99
12/31/2016	97	23	4.3	29	5.4	42	8.1	99
1/31/2017	97	50	8.6	63	9.6	93	15.7	97

Outfall - Monitoring Location - Limit Set: 001 - 1 - A

Parameter	BOD5	TSS	TSS	TSS	TSS	TSS	TSS	TSS
	Minimum	Monthly Ave	Monthly Ave	Weekly Ave	Weekly Ave	Daily Max	Daily Max	Minimum
Units	%	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	%
Effluent Limit	85	451	30	676	45	751	50	85
2/28/2017	95	123	20.5	140	25.1	166	26.5	94
3/31/2017	94	121	20.2	136	21.7	152	24.7	92
4/30/2017	97	80	11.4	117	18.4	112	14.1	96
5/31/2017	96	55	8.2	86	13.3	125	17.7	97
6/30/2017	96	41	6.3	45	6.5	85	12.8	98
7/31/2017	96	29	4.4	50	8.1	48	7	99
8/31/2017	98	33	5.3	35	5.5	108	17.4	98
9/30/2017	98	16	2.7	56	9.2	26	4.5	99
10/31/2017	98	11	2	17	3.1	19	3.3	99
11/30/2017	98	14	2.9	22	4.6	26	5.1	99
12/31/2017	98	23	4.5	27	5.4	30	6	99
1/31/2018	97	45	7.6	53	9.2	58	9.5	98
2/28/2018	98	35	6.1	45	7.8	48	8.1	98
3/31/2018	98	43	7	56	8.4	71	10.6	98
4/30/2018	97	50	8.1	77	10.8	100	14.6	97
5/31/2018	98	31	5.3	39	6.1	44	6.8	98
6/30/2018	98	24	4.1	35	5.8	35	6.3	99
7/31/2018	97	41	6.7	48	8	81	12.9	98
8/31/2018	99	35	5.6	54	8.7	68	10.5	98
9/30/2018	99	26	4.4	33	5.2	43	7.7	98
10/31/2018	99	20	3.5	32	5.4	47	8.2	99
11/30/2018	98	41	6.2	52	7.6	74	10.2	98
12/31/2018	98	21	3.4	68	9.2	44	5.8	99
1/31/2019	98	34	6.3	38	7.2	67	8.6	98
2/28/2019	98	41	7.3	43	7.8	90	14.3	98
3/31/2019	98	62	10.5	96	16.7	191	32.9	97
4/30/2019	98	42	7.4	49	8.8	70	12.5	98
5/31/2019	97	44	8.2	70	15.2	97	24.1	98
6/30/2019	98	18	3.2	22	4.1	26	5.6	99
7/31/2019	98	35	5.9	51	8.3	105	17.2	98
8/31/2019	99	27	5	34	5.6	44	7.5	99
9/30/2019	99	16	3.1	26	5.2	29	5.7	99

Outfall - Monitoring Location - Limit Set: 001 - 1 - A

Parameter	pH	pH	Enterococci	Enterococci	Enterococci	Enterococci	Fecal Coliform	Fecal Coliform
	Minimum	Maximum	Monthly Geometric Mean	Monthly Geometric Mean	Daily Max	Daily Max	Monthly Geometric Mean	Monthly Geometric Mean
Units	SU	SU	CFU/100mL	MPN/100mL	CFU/100mL	MPN/100mL	CFU/100mL	MPN/100mL
Effluent Limit	6.5	8	35	35	104	104	14	14
Minimum	6.36	7.17	0.7	1	6.3	2	1	0.5
Maximum	7.3	7.76	1.4	14.4	478.6	69.7	2	1.3
Median	6.885	7.405	1.3	1.85	17.1	14.8	1	1.05
No. of Violations	2	0	0	0	1	0	0	0
10/31/2014	7.13	7.4		1.7		3.1	1	
11/30/2014	6.99	7.33		1.5		7.5	1	
12/31/2014	6.89	7.31		4.1		42.6	1	
1/31/2015	7.04	7.34		10.8		38.9	1	
2/28/2015	7.2	7.6		14.4		41	1	
3/31/2015	7.07	7.51		7.9		68.9	1	
4/30/2015	6.98	7.56		5.1		31.7	1	
5/31/2015	7.15	7.56		1.8		31.1	1	
6/30/2015	7.02	7.4		1.1		3	1	
7/31/2015	7.01	7.41		1.8		18.9	2	
8/31/2015	6.9	7.36		1.2		16	1	
9/30/2015	6.36	7.41		1.8		7	2	
10/31/2015	6.49	7.41		1.8		11	1	
11/30/2015	6.71	7.45		1.5		6.3	1	
12/31/2015	6.88	7.49		1.9		12.1	1	
1/31/2016	6.73	7.3		2.1		23.3	1	
2/29/2016	6.77	7.35		7.2		38.4	1	
3/31/2016	6.78	7.31		2.8		25.9	1	
4/30/2016	6.82	7.29		1.8		11	1	
5/31/2016	6.82	7.76		1.2		3.1	1	
6/30/2016	7.04	7.49		1.1		3.1	1	
7/31/2016	7.07	7.44		1.1		4.1	2	
8/31/2016	6.91	7.49		1.1		4.1	1	
9/30/2016	7.12	7.47		1.2		4.1	2	
10/31/2016	6.95	7.39		1.1		5.2	1	
11/30/2016	7.04	7.5		1.4		5.2	1	
12/31/2016	6.91	7.26		2.4		25.9	1	
1/31/2017	6.71	7.17		3		18.7	1	

Outfall - Monitoring Location - Limit Set: 001 - 1 - A

Parameter	pH	pH	Enterococci	Enterococci	Enterococci	Enterococci	Fecal Coliform	Fecal Coliform
	Minimum	Maximum	Monthly Geometric Mean	Monthly Geometric Mean	Daily Max	Daily Max	Monthly Geometric Mean	Monthly Geometric Mean
Units	SU	SU	CFU/100mL	MPN/100mL	CFU/100mL	MPN/100mL	CFU/100mL	MPN/100mL
Effluent Limit	6.5	8	35	35	104	104	14	14
2/28/2017	6.67	7.25		4.9		24.9	1	
3/31/2017	6.92	7.46		4.7		31.3	1	
4/30/2017	6.91	7.45		2		11	1	
5/31/2017	6.81	7.35		1.4		9.8	1	
6/30/2017	7	7.6		1		2	1	
7/31/2017	7.2	7.6		1		2	1	
8/31/2017	7.3	7.5		1.2		52.9	1	
9/30/2017	7	7.5		1.1		4.1	2	
10/31/2017	7	7.6		1.1		6.3	1	
11/30/2017	6.9	7.3		2.1		17.5	1	
12/31/2017	6.9	7.2		2.9		29.5	1	
1/31/2018	6.6	7.3		6.6		35.5	1	
2/28/2018	6.9	7.2		4.3		24.3	1	
3/31/2018	6.7	7.2		3.6		24.6	1	
4/30/2018	6.7	7.3		6.1		18.9	1	
5/31/2018	6.7	7.3		1.7		9.8	1	
6/30/2018	6.8	7.4		1.2		5.2	1	
7/31/2018	6.9	7.5		1.3		4.1	1	
8/31/2018	6.7	7.5		1.7		38.4	1	
9/30/2018	6.8	7.7		2.2		69.7	1	
10/31/2018	6.8	7.5		1.4		8.6	1	
11/30/2018	6.6	7.3		2.4		12.2	1	
12/31/2018	6.8	7.3		1.9		9.8	1	
1/31/2019	6.8	7.3		2.8		14.8	1	
2/28/2019	6.8	7.4		4.3		28.5	1	
3/31/2019	6.9	7.3		5.9		66.3	1	
4/30/2019	6.6	7.5		2		14.8	1	
5/31/2019	6.6	7.4		2.4		32.3	1	
6/30/2019	6.79	7.52	0.7		27.9			0.5
7/31/2019	6.81	7.51	1.2		6.3			1.1
8/31/2019	6.84	7.47	1.4		478.6			1
9/30/2019	6.68	7.27	1.4		6.3			1.3

Outfall - Monitoring Location - Limit Set: 001 - 1 - A

Parameter	Coliform, fecal - % sample exceeds limit	TRC	TRC	Arsenic, total recoverable	Arsenic, total recoverable
	MO MAX	Monthly Ave	Daily Max	Monthly Ave	Daily Max
Units	%	mg/L	mg/L	mg/L	mg/L
Effluent Limit	10	0.54	0.94	Report	Report
Minimum	0	0	0	0	0
Maximum	3.3	0.24	0.93	0.002	0.002
Median	0	0.06	0.555	0.0008	0.001
No. of Violations	0	0	0	N/A	N/A
10/31/2014	0	0.19	0.92	0	0
11/30/2014	0	0.19	0.081	0	0
12/31/2014	0	0.16	0.79	0	0
1/31/2015	0	0.17	0.89	0	0
2/28/2015	0	0.09	0.68	0	0
3/31/2015	0	0.04	0.3	0	0
4/30/2015	0	0.07	0.39	0	0
5/31/2015	0	0.04	0.46	0	0
6/30/2015	0	0.1	0.55	0	0
7/31/2015	0	0.05	0.49	0	0
8/31/2015	3.2	0.08	0.74	0	0
9/30/2015	0	0.06	0.6	0	0
10/31/2015	0	0	0.23	0	0
11/30/2015	0	0.07	0.75	0	0
12/31/2015	0	0.08	0.92	0	0
1/31/2016	0	0	0.25	0	0
2/29/2016	0	0.08	0.39	0	0
3/31/2016	0	0.06	0.29	0	0
4/30/2016	0	0.07	0.56	0	0
5/31/2016	0	0.19	0.91	0	0
6/30/2016	0	0.08	0.69	0	0
7/31/2016	3.2	0.16	0.89	0	0
8/31/2016	0	0.08	0.79	0	0
9/30/2016	0	0.11	0.78	0	0
10/31/2016	0	0.14	0.84	0	0
11/30/2016	0	0	0.26	0	0
12/31/2016	0	0	0.33	0.001	0.001
1/31/2017	0	0	0.72	0.001	0.001

Outfall - Monitoring Location - Limit Set: 001 - 1 - A

Parameter	Coliform, fecal - % sample exceeds limit	TRC	TRC	Arsenic, total recoverable	Arsenic, total recoverable
	MO MAX	Monthly Ave	Daily Max	Monthly Ave	Daily Max
Units	%	mg/L	mg/L	mg/L	mg/L
Effluent Limit	10	0.54	0.94	Report	Report
2/28/2017	0	0.05	0.83	0.001	0.001
3/31/2017	0	0.13	0.87	0.001	0.001
4/30/2017	0	0.05	0.36	0.001	0.001
5/31/2017	0	0.11	0.91	0.001	0.001
6/30/2017	0	0	0.4	0.0011	0.0011
7/31/2017	0	0.23	0.91	0.0006	0.0012
8/31/2017	0	0.23	0.87	0.0013	0.0013
9/30/2017	0	0.1	0.62	0.0014	0.0015
10/31/2017	0	0.16	0.69	0.0013	0.0015
11/30/2017	0	0.24	0.93	0.001	0.001
12/31/2017	0	0.19	0.91	0.0011	0.0011
1/31/2018	0	0.16	0.92	0.00145	0.0015
2/28/2018	0	0.18	0.82	0.0011	0.0012
3/31/2018	0	0	0.32	0.0006	0.0012
4/30/2018	0	0	0.28	0.0012	0.0013
5/31/2018	0	0	0.13	0.0011	0.0011
6/30/2018	0	0.05	0.43	0.001	0.001
7/31/2018	0	0	0.93	0	0.001
8/31/2018	0	0	0.49	0.002	0.002
9/30/2018	3.3	0	0.34	0.0015	0.0016
10/31/2018	0	0.071	0.92	0.0014	0.0016
11/30/2018	0	0	0.14	0.0015	0.0015
12/31/2018	0	0	0	0.0015	0.0016
1/31/2019	0	0	0.41	0.0012	0.0012
2/28/2019	0	0	0.73	0.0014	0.0015
3/31/2019	0	0	0.34	0.0013	0.0013
4/30/2019	0	0	0.43	0.0012	0.0013
5/31/2019	0	0	0.44	< .001	0.0013
6/30/2019	0	0.06	0.44	0.001	0.0014
7/31/2019	0	0.02	0.44	0.0015	0.0017
8/31/2019	0	0.01	0.25	0.0018	0.0018
9/30/2019	0	0.01	0.29	0.0018	0.0019

Outfall - Monitoring Location - Limit Set: 001 - 1 - B

Parameter	LC50 Acute Menidia	Ammonia	Aluminum	Cadmium	Copper	Lead	Nickel	Zinc
	Daily Min	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Effluent Limit	100	Report	Report	Report	Report	Report	Report	Report
Minimum	100	0	0	0	0.005	0	0.0018	0.048
Maximum	103	18.3	0.042	0.004	0.016	0.0007	0.007	0.16
Median	100	0.25	0	0	0.00915	0.00035	0.00285	0.0825
No. of Violations	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/31/2014	100	1.27	0	0	0.008	0	0.0055	0.048
3/31/2015	¹ 103	18.3	0.042	0	0.0153	0.0003	0.0057	0.079
6/30/2015	100	0	0	0.004	0.009	0	0.003	0.075
9/30/2015	100	0.22	0.022	0	0.016	0	0.003	0.089
12/31/2015	100	0	0	0	0.0095	0.0003	0.0055	0.16
3/31/2016	100	0.17	0	0	0.011	0	0.006	0.14
6/30/2016	100	0	0	0	0.011	0	0.007	0.093
9/30/2016	100	0.11	0	0	0.005	0	0.002	0.067
12/31/2016	100	1.3	0	0	0.0079	0.0007	0.0024	0.08
3/31/2017	100	1.1	0.031	0	0.014	0.0007	0.0032	0.1
6/30/2017	100	2.3	0.022	0	0.0064	0.0007	0.002	0.081
9/30/2017	100	0.26	0	0	0.011	0.0005	0.0018	0.094
12/31/2017	100	0.41	0	0	0.0075	0.0003	0.0026	0.071
3/31/2018	100	0.24	0	0	0.011	0.0006	0.0026	0.16
6/30/2018	100	0.18	0.02	< .0003	0.0073	0.0005	0.0022	0.083
9/30/2018	100	0.54	0.028	< 0	0.0069	0.0005	0.0026	0.082
12/31/2018	100	< .1	< .02	< .0001	0.0081	0.0003	0.0022	0.079
3/31/2019	100	0.71	0	0	0.012	0.0005	0.0041	0.13
6/30/2019	100	0.5	NODI: B	NODI: B	0.0062	0.0006	0.0027	0.081
9/30/2019	100	NODI: B	NODI: B	NODI: B	0.0093	0.0004	0.0031	0.092

¹The Permittee recorded the March 2015 acute WET test result as 103% for the WET test using *Menidia beryllina*, however, the actual WET test report indicates the LC50 is 100%.

Outfall - Monitoring Location - Limit Set: 001 - 1 - B

Parameter	Chromium, total recoverable	LC50 Static 48Hr Acute Mysid. Bahia
	Daily Max	Daily Min
Units	mg/L	%
Effluent Limit	Report	100
Minimum	0	100
Maximum	0	100
Median	0	100
No. of Violations	N/A	0
12/31/2014	0	100
3/31/2015	0	100
6/30/2015	0	100
9/30/2015	0	100
12/31/2015	0	100
3/31/2016	0	100
6/30/2016	0	100
9/30/2016	0	100
12/31/2016	0	100
3/31/2017	0	100
6/30/2017	0	100
9/30/2017	0	100
12/31/2017	0	100
3/31/2018	0	100
6/30/2018	< .001	100
9/30/2018	< 0	100
12/31/2018	< .001	100
3/31/2019	0	100
6/30/2019	NODI: B	100
9/30/2019	NODI: B	100

Outfall - Monitoring Location - Limit Set: 001 - G - A

Parameter	BOD5	BOD5	TSS	TSS
	Monthly Ave	Monthly Ave	Monthly Ave	Monthly Ave
Units	lb/d	mg/L	lb/d	mg/L
Effluent Limit	Report	Report	Report	Report
Minimum	1497	271	1200	227
Maximum	2975	460	2626	424
Median	2005	347	1828	308.5
No. of Violations	N/A	N/A	N/A	N/A
10/31/2014	1761	355	1707	340
11/30/2014	1587	323	1503	304
12/31/2014	1688	275	1659	265
1/31/2015	1641	311	1200	227
2/28/2015	1497	291	1201	233
3/31/2015	1599	313	1289	253
4/30/2015	1766	306	1668	289
5/31/2015	1907	372	1524	297
6/30/2015	1920	328	1628	278
7/31/2015	2022	336	1736	287
8/31/2015	1915	325	1743	296
9/30/2015	1687	320	1400	264
10/31/2015	1718	327	1264	239
11/30/2015	1709	343	1360	273
12/31/2015	1880	351	1386	262
1/31/2016	1778	331	1289	240
2/29/2016	1814	324	1348	240
3/31/2016	1768	309	1376	240
4/30/2016	1856	349	1597	299
5/31/2016	1665	329	1413	275
6/30/2016	1904	365	1609	308
7/31/2016	2226	393	2407	424
8/31/2016	2057	347	1888	317
9/30/2016	2071	363	2261	397
10/31/2016	1845	316	1913	326
11/30/2016	2029	361	1685	311
12/31/2016	1789	332	1633	301
1/31/2017	2179	358	1989	326
2/28/2017	2149	360	1934	325
3/31/2017	2090	346	1553	257
4/30/2017	2330	341	2060	302
5/31/2017	2098	297	2293	318
6/30/2017	1938	294	2053	311
7/31/2017	2466	370	2269	341

Outfall - Monitoring Location - Limit Set: 001 - G - A

Parameter	BOD5	BOD5	TSS	TSS
	Monthly Ave	Monthly Ave	Monthly Ave	Monthly Ave
Units	lb/d	mg/L	lb/d	mg/L
Effluent Limit	Report	Report	Report	Report
8/31/2017	2470	403	2045	332
9/30/2017	1597	279	1817	318
10/31/2017	1999	336	2097	351
11/30/2017	2003	353	1795	315
12/31/2017	1969	356	1847	329
1/31/2018	2120	347	1879	309
2/28/2018	2059	343	1746	289
3/31/2018	2456	378	1858	286
4/30/2018	2405	364	2008	304
5/31/2018	2126	349	1862	302
6/30/2018	2314	392	1931	328
7/31/2018	2498	389	2340	366
8/31/2018	2606	404	2291	356
9/30/2018	2007	338	1676	284
10/31/2018	2371	422	1875	335
11/30/2018	2295	353	2012	296
12/31/2018	1651	271	1807	295
1/31/2019	2166	378	2141	358
2/28/2019	2519	400	1981	320
3/31/2019	2975	460	2626	410
4/30/2019	1998	319	2005	323
5/31/2019	2264	371	2210	362
6/30/2019	2112	393	1839	373
7/31/2019	2157	385	2157	328
8/31/2019	2129	402	2035	354
9/30/2019	1538	285	1649	309

CORMIX SESSION REPORT:

XX

CORMIX MIXING ZONE EXPERT SYSTEM

CORMIX Version 11.0GTD

HYDRO2:Version-11.0.1.0 August, 2019

SITE NAME/LABEL: SeabrookPOTW
 DESIGN CASE: 15minafterspringlow
 FILE NAME:

S:\WD-Wastewater\Towns\Seabrook\PermittedFacilities\Sites\NH0101303Seabrook\Reissuance\DilutionCalcs\SeabrookDilution.prd
 Using subsystem CORMIX2: Multiport Diffuser Discharges
 Start of session: 01/10/2020--13:55:38

SUMMARY OF INPUT DATA:

AMBIENT PARAMETERS:

Cross-section = unbounded
 Average depth HA = 7.22 m
 Depth at discharge HD = 7.22 m
 Darcy-Weisbach friction factor F = 0.0366
 Calculated from Manning's n = 0.03
 Wind velocity UW = 0 m/s
 TIDAL SIMULATION at time Tsim = 0.25 hours
 Instantaneous ambient velocity UA = 0.0143 m/s
 Maximum tidal velocity UaMAX = 0.1131 m/s
 Rate of tidal reversal dUA/dt = 0.0572 (m/s)/hour
 Period of reversal T = 12.4 hours
 Stratification Type STRCND = A
 Surface density RHOAS = 1023.35 kg/m³
 Bottom density RHOAB = 1023.85 kg/m³

DISCHARGE PARAMETERS:

Submerged Multiport Diffuser Discharge
 Diffuser type DITYPE = unidirectional parallel
 Diffuser length LD = 25.71 m
 Nearest bank = right
 Diffuser endpoints YB1 = 304.80 m; YB2 = 322.97 m
 Number of openings NOPEN = 20
 Number of Risers NRISER = 20
 Ports/Nozzles per Riser NPPERR = 1
 Spacing between risers/openings SPAC = 1.35 m
 Port/Nozzle diameter D0 = 0.0479 m
 with contraction ratio = 1
 Equivalent slot width B0 = 0.001332 m
 Total area of openings TAO = 0.0360 m²
 Discharge velocity U0 = 2.19 m/s
 Total discharge flowrate Q0 = 0.078863 m³/s
 Discharge port height H0 = 0.6 m
 Nozzle arrangement BETYPE = unidirectional without fanning
 Diffuser alignment angle GAMMA = 45 deg
 Vertical discharge angle THETA = 30 deg
 Actual Vertical discharge angle THEAC = 30 deg
 Horizontal discharge angle SIGMA = 134.90 deg
 Relative orientation angle BETA = 90 deg
 Discharge temperature (freshwater) = 23 degC
 Corresponding density RHO0 = 997.5393 kg/m³
 Density difference DRHO = 26.0607 kg/m³
 Buoyant acceleration GP0 = 0.2497 m/s²
 Discharge concentration C0 = 100 %
 Surface heat exchange coeff. KS = 0 m/s
 Coefficient of decay KD = 0 /s

FLUX VARIABLES PER UNIT DIFFUSER LENGTH:

Discharge (volume flux) q0 = 0.003067 m²/s
 Momentum flux
 (based on slot width B0) m0 = U0²*B0 = 0.006376 m³/s²
 (based on volume flux q0) m0 = U0*q0 = 0.006712 m³/s²
 Buoyancy flux
 (based on slot width B0) j0 = U0*GP0*B0 = 0.000728 m³/s³
 (based on volume flux q0) j0 = q0*GP0 = 0.000766 m³/s³

DISCHARGE/ENVIRONMENT LENGTH SCALES:

LQ = 0.00 m Lm = 32.82 m LM = 0.80 m
 lm' = 99999 m Lb' = 99999 m La = 99999 m

UNSTEADY TIDAL SCALES:

Tu = 0.3279 hours Lu = 22.14 m Lmin= 3.67 m
 (These refer to the actual discharge/environment length scales.)

NON-DIMENSIONAL PARAMETERS:

Slot Froude number FR0 = 120.00
 Port/nozzle Froude number FRD0 = 20.01
 Velocity ratio R = 153.02

MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:

Toxic discharge = no
 Water quality standard specified = no
 Regulatory mixing zone = no
 Region of interest = 1000 m downstream

HYDRODYNAMIC CLASSIFICATION:

 | FLOW CLASS = MUIV |

```

*-----*
This flow configuration applies to a layer corresponding to the full water
depth at the discharge site. The ambient density stratification at the
discharge site is relatively weak and unimportant so the discharge flow
penetrates to the surface and/or breaks down the existing stratification
through vigorous mixing.
Applicable layer depth = water depth = 7.22 m
*****
MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):
-----

X-Y-Z Coordinate system:
Origin is located at the BOTTOM below the port/diffuser center:
    313.88 m from the right bank/shore.
Number of display steps NSTEP = 10 per module.
-----

NEAR-FIELD REGION (NFR) CONDITIONS :
Note: The NFR is the zone of strong initial mixing. It has no regulatory
implication. However, this information may be useful for the discharge
designer because the mixing in the NFR is usually sensitive to the
discharge design conditions.
Pollutant concentration at NFR edge  c = 1.7798 %
Dilution at edge of NFR             s = 56.2
NFR Location:                       x = 2.05 m
(centerline coordinates)            y = 1.23 m
                                    z = 3.21 m
NFR plume dimensions: half-width (bh) = 13.32 m
                      thickness (bv) = 0.47 m
Cumulative travel time: 0 sec.
-----

Buoyancy assessment:
The effluent density is less than the surrounding ambient water
density at the discharge level.
Therefore, the effluent is POSITIVELY BUOYANT and will tend to rise towards
the surface.
-----

Stratification assessment:
The specified ambient density stratification is weak relative to the
discharge conditions and is dynamically unimportant. The discharge will
behave as if the ambient were unstratified.
-----

PLUME BANK CONTACT SUMMARY:
Plume in unbounded section does not contact bank in this simulation.
-----

UNSTEADY TIDAL ASSESSMENT:
Because of the unsteadiness of the ambient current during the tidal
reversal, CORMIX predictions have been TERMINATED at:
      x = 2.05 m
      y = 1.23 m
      z = 2.58 m.

For this condition AFTER TIDAL REVERSAL, mixed water from the previous
half-cycle becomes re-entrained into the near field of the discharge,
increasing pollutant concentrations compared to steady-state predictions.
A pool of mixed water formed at slack tide will be advected downstream
in this phase.
***** TOXIC DILUTION ZONE SUMMARY *****
No TDZ was specified for this simulation.
***** REGULATORY MIXING ZONE SUMMARY *****
No RMZ and no ambient water quality standard have been specified.
***** FINAL DESIGN ADVICE AND COMMENTS *****
CORMIX2 uses the TWO-DIMENSIONAL SLOT DIFFUSER CONCEPT to represent
the actual three-dimensional diffuser geometry. Thus, it approximates
the details of the merging process of the individual jets from each
port/nozzle.
In the present design, the spacing between adjacent ports/nozzles
(or riser assemblies) is of the order of, or less than, the local
water depth so that the slot diffuser approximation holds well.

Nevertheless, if this is a final design, the user is advised to use a
final CORMIX1 (single port discharge) analysis, with discharge data
for an individual diffuser jet/plume, in order to compare to
the present near-field prediction.
-----

REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known
technique is NOT AN EXACT SCIENCE.
Extensive comparison with field and laboratory data has shown that the
CORMIX predictions on dilutions and concentrations (with associated
plume geometries) are reliable for the majority of cases and are accurate
to within about +-50% (standard deviation).
As a further safeguard, CORMIX will not give predictions whenever it judges
the design configuration as highly complex and uncertain for prediction.

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3

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

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

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

Where:

C_s = upstream concentration (median value of available ambient data)

Q_s = upstream flow (7Q10 flow upstream of the outfall)

C_e = effluent concentration (95th percentile or maximum of effluent concentration)

Q_e = effluent flow of the facility (design flow)

C_d = downstream concentration

Q_d = downstream flow ($Q_s + Q_e$)

Solving for the downstream concentration results in:

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

When both the downstream concentration (C_d) and the effluent concentration (C_e) exceed the applicable criterion, there is reasonable potential for the discharge to cause, or contribute to an excursion above the water quality standard. *See* 40 C.F.R. § 122.44(d). When EPA determines that a discharge causes, has the reasonable potential to cause, or contribute to such an excursion, the permit must

Appendix C – Reasonable Potential and Limits Calculations

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contain WQBELs for the parameter. *See* 40 C.F.R. § 122.44(d)(1)(iii). Limits are calculated by using the criterion as the downstream concentration (C_d) and rearranging the mass balance equation to solve for the effluent concentration (C_e). The table below presents the reasonable potential calculations and, if applicable, the calculation of the limits required in the permit. Refer to the pollutant-specific section of the Fact Sheet for a detailed discussion of these calculations, any assumptions that were made and the resulting permit requirements.

Pollutant	DF	C_s ¹	C_e ²		C_d		Criteria * 0.9		Reasonable Potential		Limits	
	--	mg/L	Acute (mg/L)	Chronic (mg/L)	Acute (mg/L)	Chronic (mg/L)	Acute (mg/L)	Chronic (mg/L)	C_d & C_r > Acute Criteria	C_d & C_r > Chronic Criteria	Acute (mg/L)	Chronic (mg/L)
Ammonia (Warm)	36.0	0.0	1.5	1.5	0.0	0.0	29.3	4.3	N	N	N/A	N/A
Ammonia (Cold)		0.0	1.5	1.5	0.0	0.0	62.6	9.5	N	N	N/A	N/A
		$\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$			$\mu\text{g/L}$	$\mu\text{g/L}$
Cadmium		0.0	0.0	0.0	0.0	0.0	36.2	8.0	N	N	N/A	N/A
Copper		0.0	15.3	15.3	0.4	0.4	5.2	3.4	N	N	N/A	N/A
Lead		0.0	0.8	0.8	0.0	0.0	198.7	7.7	N	N	N/A	N/A
Nickel		0.0	6.3	6.3	0.2	0.2	67.3	7.5	N	N	N/A	N/A
Zinc		0.0	146.8	146.8	4.1	4.1	85.6	77.1	N	N	N/A	N/A

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

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

Clean Water Act Section 403(c) Ocean Discharge Criteria Evaluation

Seabrook WWTF

March 2020

I. Introduction

EPA has determined that the Seabrook Wastewater Treatment Facility outfall is seaward of the territorial sea baseline and, therefore, is subject to Section 403 of the Clean Water Act (CWA).

The Ocean Discharge Criteria regulations found at 40 CFR Part 125 – Subpart M establish ocean discharge guidelines from which a permit writer must make a judgment that a discharge will, or will not, cause “unreasonable degradation” of the marine environment.

A determination of whether “unreasonable degradation” will occur is based on consideration of the 10 guidelines found in 40 CFR §125.122. “Unreasonable degradation” of the marine environment is defined in the Ocean Discharge Criteria as any of the following:

1. Significant adverse changes in ecosystem diversity, productivity, and stability of the biological community within the area of discharge and surrounding biological communities;
2. Threat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms; or
3. Loss of aesthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge.

If a determination can be made that no “unreasonable degradation” will result, a permit is issued including appropriate conditions to ensure that unreasonable degradation does not take place. These conditions may include a requirement for an ongoing monitoring program. If EPA determines that a discharge will cause unreasonable degradation despite the application of all possible permit conditions, it may not issue a permit authorizing the discharge of pollutants.

If, because of insufficient information, a determination cannot be made prior to the issuance of a permit that no unreasonable degradation will result, then additional conditions must be satisfied.

II. Criteria Evaluation

The determination of no “unreasonable degradation” is to be made based on a consideration of the 10 guidelines found in 40 CFR § 125.122. The 10 guidelines are discussed below:

1. Quantities, composition, and potential for bioaccumulation or persistence of the pollutants to be discharged.

The Seabrook WWTF has an average monthly design flow of 1.8 million gallons per day (MGD). A summary of effluent parameters taken from monthly discharge monitoring reports (DMRs) is shown in Table 1. The following is an assessment of the effluent:

- a. **Type:** The effluent is composed mainly of domestic sewage from the Town of Seabrook. The Town also receives wastewater from three industrial users within the collection system. The Town of Seabrook is presently not required to administer a pretreatment program under 40 CFR § 122.44(j), 40 CFR § 403, and Section 307 of the Clean Water Act. However, the permit contains conditions that ensure that pollutants from industrial users will not pass through the facility and cause water quality standard violations or cause interference with the operation of the treatment facility.
- b. **Sources:** The facility receives domestic wastewater from a population of approximately 10,000 people in the Town of Seabrook. The facility also receives wastewater from three industrial users within the collection system.
- c. **Amounts:** The plant has an average monthly design flow of 1.8 mgd. For the period October 1, 2014, through August 31, 2019, the median monthly flow from the plant has been 0.674 MGD. For the same time frame the highest daily flows were 1.324, 1.1344 and 1.0749 MGD.
- d. For the period from October 1, 2014, through August 31, 2019, the flows from the plant have been relatively consistent. The average yearly flows during this period have been 0.660, 0.680, 0.708, 0.635, and 0.676 MGD.
- e. **Physical, Chemical, and Toxicological Properties:** The plant provides secondary treatment for the wastewater generated within the Town. The permit contains effluent limitations and/or monitoring requirements for effluent flow, biochemical oxygen demand, total suspended solids, pH, total residual chlorine, total recoverable arsenic, Enterococci bacteria, fecal coliform bacteria, and whole effluent toxicity.

Summary:

The Seabrook WWTF treats wastewater generated by the Town of Seabrook to secondary standards. Secondary treatment effluent should not contain significant amounts of pollutants that bioaccumulate or that are toxic. The permit has and will continue to prohibit the discharge of pollutants in toxic amounts. The facility has been, and will continue to be, required to conduct whole effluent toxicity (WET) testing and to submit those results to EPA. The facility has been able to comply with the toxicity requirements in the past and is expected to be able to continue to operate in compliance in the future.

Table 1
Effluent Characteristics for the Period October 1, 2014,
Through September 30, 2019

Effluent Parameter	Monthly Average	Range of Monthly Averages	Maximum of Daily Maximums¹
Flow (MGD)	0.672	0.562 – 0.832	1.324, 1.1344, 1.0749
pH (Standard Units) ²	N/A	6.36 – 7.76	N/A
Fecal Coliform Bacteria (colonies/100 ml)	1.08	0.5-2	2, 2, 2
Enterococci	2.76	0.7 – 14.4	14.4, 10.8 7.9
Total Residual Chlorine (mg/l)	0.071	0-0.24	0.24, 0.23, 0.23
BOD ₅ (mg/L)	10.35	3.2 – 23.1	23.1, 22.6, 22.2
BOD ₅ (lb/d)	59.92	16-143	---
BOD ₅ (% removal)	97	---	---
TSS (mg/l)	6.22	2 – 20.5	20.5, 20.2, 11.4
TSS (lb/d)	39.42	11 – 123	---
TSS (% removal)	98	---	---
Total Recoverable Arsenic	0.0007	0 – 0.002	0.002, 0.0018, 0.0018
LC50 (% effluent) ³ <i>Menidia beryllina</i>	---	---	100, 100, 100
LC50 (% effluent) ³ <i>Mysidopsis bahia</i>	---	---	100, 100, 100

1. More than one number represents the second and third highest values.
2. Numbers listed are the minimum and maximum daily readings
3. Minimums of the daily values.

2. Potential transport of pollutants by biological, physical, or chemical process.

The Seabrook WWTF outfall is located in coastal waters adjacent to Seabrook Beach, just north of the New Hampshire/Massachusetts state line, in the Gulf of Maine, Atlantic Ocean. The outfall is approximately 2100 feet offshore and located close to the sea floor where depths are approximately 30 feet Mean Sea Level (MSL)¹. The Seabrook outfall is in a body of water generally opened to the ocean on north, south and east directions.

In general, the flow of currents off Seabrook Beach exhibit seasonal patterns. Approximately 28% of the time the current flow is to the north. This occurs primarily in summer and fall. Approximately 28% of the time the current flow is toward the south. This occurs primarily in spring and winter. Over 40% of the time, the flow direction is determined by tidal flows. Near surface current speeds range from 21.1 to 41.2 cm/sec, while mid-depth current speeds range from 10.8 to 30.9 cm/sec (EPA, 1999).

¹ Earth Tech, 1999, "Final Report, Hydrodynamic Mixing Study, Seabrook Wastewater Treatment Plant, Town of Seabrook, NH"

The 2010 NPDES permit was based upon a dilution factor of 72 which was determined by the Town of Seabrook's consultant in 1999 using the Cornell Mixing Zone Expert System (CORMIX). In 2001, the Town modified the existing diffuser on the effluent pipe by installing pinch valves on each of the twenty diffuser ports. CORMIX modeling was performed by the New Hampshire Department of Environmental Services (NHDES) determined that this change would not affect the dilution factor. In 2019, NHDES re-modeled the diffuser using the most current version of CORMIX, CORMIX Version 11, and returned a dilution factor of 36. The draft permit has been developed using a dilution factor of 36 which has resulted in more stringent effluent limits for some pollutants.

Summary:

The lack of nonconventional pollutants combined with the available dilution and subsequent dispersion makes the transport and fate of pollutants from this discharge of little concern. However, the transport and fate of bacteria from this discharge is of concern based on the proximity of public beaches and shellfish beds. This concern will be discussed later in this document.

3. Composition and vulnerability of potentially exposed biological communities, including: unique species or communities, endangered or threatened species, and species critical to the structure or function of the ecosystem.

A number of endangered or threatened species are known to inhabit New Hampshire coastal waters. These include Atlantic sturgeon, shortnose sturgeon, green sea turtle, Kemp's ridley sea turtle, leatherback sea turtle, loggerhead sea turtle, North Atlantic right whale, and fin whale. These species are generally pelagic, with the exception of the sturgeon. The discharge is required to meet state water quality standards and the lack of nonconventional (i.e. toxic) pollutants in the discharge greatly reduces the potential risk to these species.

EPA has made the determination that the proposed action may affect, but is not likely to adversely affect, endangered or threatened species found in the action area along with the designated North Atlantic right whale and Atlantic sturgeon critical habitats that overlaps the action area. EPA must consult with NOAA Fisheries to document concurrence with this determination. See Section 6.2 of the Fact Sheet.

4. Importance of the receiving water area to the surrounding biological community such as spawning sites, nursery/forage area, migratory pathways, and areas necessary for critical life stages/functions of an organism.

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 (NOAA Fisheries) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat," 16 U.S.C. § 1855(b).

The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." 16 U.S.C. §

1802(10). “Adverse impact” means any impact that reduces the quality and/or quantity of EFH, 50 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), or site specific or habitat-wide impacts, including individual, cumulative or synergistic consequences of actions.

EFH is only designated for fish species for which federal Fisheries Management Plan exist. *See* 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

A review of the relevant essential fish habitat information provided by NOAA Fisheries indicates that the outfall exists within designated EFH for 27 federally managed species and one Habitat Area of Particular Concern (HAPC). The EFH species and life stages are listed in Table 2. A full discussion of potential impacts to EFH species and the HAPC is found in Section 6.3 of the Fact Sheet.

It is expected that the receiving water will also be used by species within the biological community for which there are not EFH designations for spawning, foraging, migration, and other functions.

Due to the nature of the discharge and the dispersive capabilities of the area, the impacts from the discharge on the biota are anticipated to be limited to the area immediately around the discharge point.

Table 2
EFH Species and life stages in the vicinity of Seabrook WWTF
Outfall at Latitude 42° 52’ 22” N, Longitude 71° 11’ 27” W

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

Species/Management Unit	Lifestage(s) Found at Location
Witch Flounder	Adult
American Plaice	Adult, Juvenile
Bluefin Tuna	Adult, Juvenile
Porbeagle Shark	ALL
Northern Shortfin Squid	Adult
Longfin Inshore Squid	Juvenile, Adult
Atlantic Mackerel	Juvenile, Adult
Bluefish	Adult, Juvenile
Atlantic Butterfish	Adult, Juvenile
Spiny Dogfish	Adult Male
Atlantic Surfclam	Juvenile, Adult
Habitat Area of Particular Concern Name	
Inshore 20m Juvenile Cod	

5. The existence of special aquatic sites, including marine sanctuaries/refuges, parks, monuments, national seashores, wilderness areas, and coral reefs.

No special aquatic sites exist near the area of the proposed discharge.

6. Potential direct or indirect impacts on human health.

The coastal beach monitoring program in New Hampshire began in 1989. At that time, the NHDES inspected five coastal beaches. In October 2000, Congress amended the Clean Water Act to include the Beaches Environmental Assessment and Coastal Health (BEACH) Act. Under the BEACH Act, EPA was authorized to award grants to eligible states to develop and implement monitoring and notification programs. These programs protect the public from exposure to pathogenic microorganisms in coastal recreation waters.

NHDES first received BEACH grant funds in 2002. Since then coastal beach monitoring throughout the state has increased from nine beaches in 2002 to sixteen in 2020. Coastal beaches are monitored for the presence of fecal bacteria, *Enterococci*, which are present in the intestines of warm-blooded animals including humans. Fecal bacteria, when present in high concentrations and ingested, can commonly cause gastrointestinal illnesses such as nausea, vomiting and diarrhea. These indicator organisms signify the possible presence of other potentially disease-causing organisms in the waterbody. The NHDES used an instantaneous level of 104 enterococci/100 ml as the standard.

The Seabrook WWTF outfall is located approximately 2100 feet offshore from Seabrook Town Beach. This is the closest swimming area to the outfall. There has been 1 advisory closure of this beach due to high levels of *Enterococci* bacteria for the period 2003-2019 (NHDES, 2019).

7. Existing or potential recreational and commercial fishing.

The discharge is located approximately 2100 feet off the Seabrook Town Beach in Gulf of Maine (Atlantic Ocean). A closure zone was defined in February 2004 based on the results of a dye study performed by the U.S. Federal Drug Administration with assistance from NHDES and Massachusetts Division of Marine Fisheries (Nash, 2020). The closure zone attributable to the Seabrook is shown in Figure 1 below. It should be noted that the closure zone is not a reflection of the effluent quality coming from the outfall. Rather, the closure zone is a requirement under FDA for areas that contain a sanitary outfall.

Figure 1

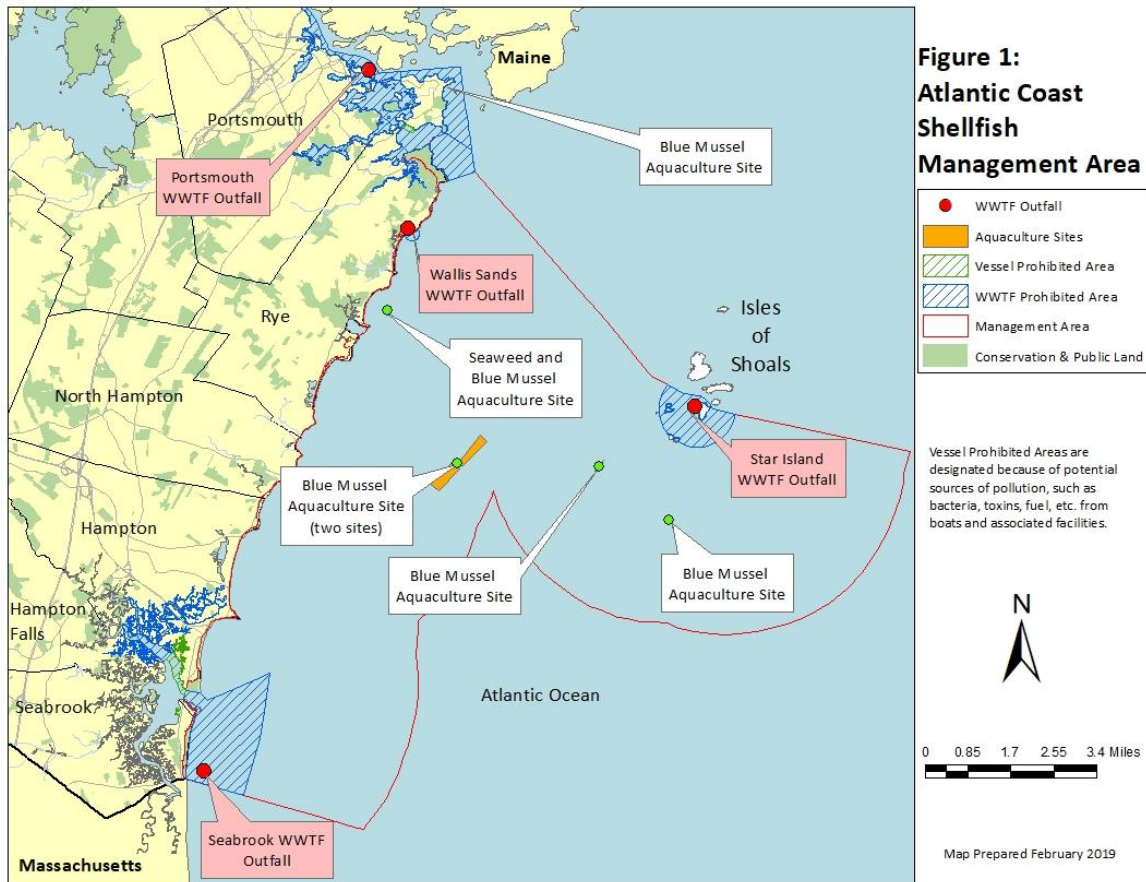


Figure 1: From 2016-2018 TRIENNIAL SHELLFISH MANAGEMENT AREA UPDATE FOR THE ATLANTIC COAST, GULF OF MAINE, NEW HAMPSHIRE (December 2019, authored by C. Nash and B. Dejadon of NHDES)

Paralytic Shellfish Poisoning (PSP) or Red Tide can extend over large stretches of the Maine, New Hampshire, and Massachusetts coasts, not just the Seabrook area. PSP is a serious illness caused by eating shellfish contaminated with harmful neurotoxins. These neurotoxins are produced by microscopic algae that can bloom in certain environmental conditions. NHDES conducts weekly sampling from April through October of blue mussel tissue at one nearshore site in the Hampton/Seabrook area and one offshore site at Isle of Shoals (Nash, 2020). Additional species and stations are added as needed. DES also collects weekly seawater samples and examines cell abundance of selected harmful algal bloom species at four locations, weekly from February through November.

Additional stations and sampling runs are added as conditions dictate. “PSP is a recurrent and widespread problem in the Gulf of Maine (GOM)...”² PSP outbreaks generally originate in waters further north off the coast of Maine and spread south, so it is not expected that Seabrook’s discharge causes or contributes to Red Tide outbreaks in the area.

Areas around the discharge can be utilized for recreational fishing for species such as lobster, flounder, striped bass, and mackerel. Additionally, commercial fishing for lobster takes place in this area as does gill netting. The New Hampshire Fish and Game has not received any reports concerning reduced catches or diseases associated with lobsters and finfish (Patterson, 2020).

The discharge is not expected to have any negative impact to any recreationally or commercially sought fish or lobsters. This is due to the fact that the plant does not discharge any nonconventional pollutants that tend to bioaccumulate and considerable dilution is provided by the ocean water. Additionally, the permit has, and continues to, require Whole Effluent Toxicity testing on *Mysid bahia* and *Menidia beryllina*. The permit limit is, and continues to be, 100% effluent. This means that a sample composed of 100% effluent shall cause not greater than 50% mortality to the identified species. As shown in Table 1 above, the Seabrook WWTF has consistently complied with the LC50 limit for both species.

8. Any requirements of an approved Coastal Zone Management Plan (CZMP).

An NPDES permit may not be issued for a discharge to marine or estuarine waters without a review for consistency with the State of New Hampshire Coastal Zone Management Plan. This review has not yet been performed and typically occurs after the permit has been placed on public notice. It is not anticipated that the Seabrook WWTF will have any issues complying with the New Hampshire Coastal Zone Management Plan consistency review.

9. Other factors relating to the effects of the discharge as may be appropriate.

Two other effects often associated with treatment plant discharges in New England are enhanced primary productivity and low ambient dissolved oxygen concentrations. Seabrook has a small discharge volume and receives considerable dilution when it mixes with the ocean. Consequently, the potential for nuisance algal blooms or episodes of high primary productivity are low. (EPA, 1999)

The potential for episodes of extremely low dissolved oxygen in the area of Seabrook’s discharge is low for several reasons. The quantity of organic matter discharged in the effluent is low, so the oxygen demand of the effluent will be low. Also, ambient water temperatures are low, which means the solubility of oxygen in this area would be high. These two factors combine to make the occurrence of low dissolved oxygen events unlikely. (EPA, 1999)

² https://coastalscience.noaa.gov/data_reports/bloom-dynamics-of-the-red-tide-dinoflagellate-alexandrium-fundyense-in-the-gulf-of-maine-a-synthesis-and-progress-towards-a-forecasting-capability/

10. Marine water quality criteria.

Based on the initial dilution and the anticipated low concentrations of nonconventional pollutants, this discharge is expected to meet all applicable water quality criteria.

The permit contains a condition that the discharge shall not cause a violation of the water quality standards of the receiving water and also that the POTW does not discharge pollutants or combinations of pollutants in toxic amounts.

III. Determination of No Unreasonable Degradation to the Marine Environment

Seabrook, NH is a small coastal community with limited industrial inputs into its municipal wastewater. The average monthly design flow of 1.8 mgd is relatively small and receives considerable dilution from the Gulf of Maine (Atlantic Ocean). It is not anticipated that the discharge will result in the bioaccumulation of nonconventional pollutants. Additionally, the facility has not, and is not expected to in the future, adversely affect any special aquatic sites, endangered species, recreational or commercial fishing, or human health. Based on a review of discharge monitoring reports the facility is in compliance the vast majority of the time.

Based upon available information, EPA believes that this discharge will not cause unreasonable degradation of the marine environment.

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12. National Marine Fisheries Service – North East Regional Office. List of Endangered or Threatened Species under the Jurisdiction of NOAA Fisheries Service Northeast Region.
13. New Hampshire Department of Environmental Services. Seabrook Town Beach, 2014 Annual Report.
14. New Hampshire Department of Environmental Services. Seabrook Town Beach, 2019 Annual Report.

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

U.S. ENVIRONMENTAL PROTECTION
AGENCY-REGION 1
WATER DIVISION
5 POST OFFICE SQUARE
BOSTON, MASSACHUSETTS 02109

JOINT PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE
ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO WATERS OF THE
UNITED STATES UNDER SECTION 402 OF THE CLEAN WATER ACT ("CWA" or THE
"ACT"), AS AMENDED, AND 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: June 23, 2020 – July 22, 2020

PERMIT NUMBER: **NH0101303**

PUBLIC NOTICE NUMBER: NH-016-20

NAME AND MAILING ADDRESS OF APPLICANT:

Town of Seabrook
c/o William Manzi III, Town Manager
99 Lafayette Road
PO Box 456
Seabrook, New Hampshire 03874

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Town of Seabrook
c/o William Manzi III, Town Manager
99 Lafayette Road
PO Box 456
Seabrook, New Hampshire 03874

RECEIVING WATER AND CLASSIFICATION:

Gulf of Maine, (Class B)

PREPARATION OF THE DRAFT PERMIT AND CWA § 401 CERTIFICATION:

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 Seabrook Wastewater Treatment Plant, which discharges treated domestic

and industrial wastewater. Sludge from this facility is facility is dewatered on site and shipped for composting to various contractors. The effluent limits and permit conditions imposed have been drafted to assure compliance with the CWA and State water quality standards in 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. In addition, EPA has requested that the State certify the draft permit pursuant to Section 401 of the CWA and NHDES has determined that the draft permit, with any additional state conditions included in the state certification, assures compliance with Sections 208(e), 301, 302, 303, 306 and 307 of the CWA and with State water quality requirements.

INFORMATION ABOUT THE DRAFT PERMIT:

The draft permit and explanatory fact sheet may be obtained at no cost at http://www.epa.gov/region1/npdes/draft_permits_listing_nh.html or by contacting:

Michele Barden
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (06-1)
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 by appointment, Monday through Friday, except holidays and during facility closures due to COVID-19. All data submitted by the applicant are available as part of the administrative record.

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 **July 22, 2020**, to the EPA contact and 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 and CWA § 401 certification. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice if the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION:

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

THOMAS E. O'DONOVAN, DIRECTOR
WATER DIVISION
NEW HAMPSHIRE DEPARTMENT OF
ENVIRONMENTAL SERVICES

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

NEW HAMPSHIRE DEPARTMENT OF
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5 POST OFFICE SQUARE
BOSTON, MASSACHUSETTS 02109

JOINT EXTENSION OF PUBLIC COMMENT PERIOD 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.

PUBLIC NOTICE PERIOD: June 23, 2020 – July 22, 2020

PUBLIC NOTICE EXTENDED TO: August 6, 2020

PERMIT NUMBER: NH0101303

PUBLIC NOTICE NUMBER: NH-021-20

NAME AND MAILING ADDRESS OF APPLICANT:

**Town of Seabrook
c/o William Manzi III, Town Manager
99 Lafayette Road
PO Box 456
Seabrook, New Hampshire 03874**

NAME AND LOCATION OF FACILITY WHERE DISCHARGE OCCURS:

**Town of Seabrook
c/o William Manzi III, Town Manager
99 Lafayette Road
PO Box 456
Seabrook, New Hampshire 03874**

RECEIVING WATER: Gulf of Maine, (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 Seabrook Wastewater Treatment Plant, which discharges treated domestic and industrial wastewater. Sludge from this facility is facility is dewatered on site and shipped for composting to various contractors. The effluent limits and permit conditions imposed have been drafted to assure compliance with the CWA and State water quality standards in 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. In addition, EPA has requested that the State certify the draft permit pursuant to Section 401 of the CWA and NHDES has determined that the draft permit, with any additional state conditions included in the state certification, assures compliance with Sections 208(e), 301, 302, 303, 306 and 307 of the CWA and with State water quality requirements.

INFORMATION ABOUT THE DRAFT PERMIT:

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U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (06-1)
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 by appointment, Monday through Friday, except holidays and during facility closures due to COVID-19. All data submitted by the applicant are available as part of the administrative record.

EXTENSION OF PUBLIC COMMENT PERIOD:

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 midnight **August 6, 2020**, to the address or email address listed above. Any person, prior to such date, may submit a request in writing to EPA and NHDES for a public hearing to consider this draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION:

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

THOMAS E. O'DONOVAN, P.E., DIRECTOR
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KEN MORAFF, DIRECTOR
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U.S. ENVIRONMENTAL PROTECTION
AGENCY - REGION I