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"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§ 26-53),

Town of Spencer
Sewer Commission

is authorized to discharge from the facility located at

Spencer Wastewater Treatment Plant
Route 9
Spencer, MA 01562

to receiving water named

Cranberry River

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 sixty days after signature.

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 September 27, 2007.

This permit consists of **Part I** (18 pages including effluent limitations and monitoring requirements); **Attachment A** (Freshwater Acute Toxicity Test Procedure and Protocol, February 2011, 8 pages); **Attachment B** (USEPA Region 1 Freshwater Chronic Toxicity Test Procedure and Protocol, March 2013, 7 pages); and **Part II (**21 pages including NPDES Part II Standard Conditions).

Signed this 28th day of February, 2019

/S/Signature on File
Ken Moraff, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

/S/Signature on File
Lealdon Langley, Director
Division of Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

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PART I

A.1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001** to Cranberry River. The discharge shall be limited and monitored as specified below; the receiving water and the influent shall be monitored as specified below.

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS**[1,2,3]	
PARAMETER	**AVERAGE MONTHLY**[4]	**AVERAGE WEEKLY**[4]	**AVERAGE MONTHLY**[4]	**AVERAGE WEEKLY**[4]	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
INFLUENT FLOW – ANNUAL AVERAGE [6,7]	********	********	1.08 MGD	********	********	CONTINUOUS	RECORDER
INFLUENT FLOW [6]	********	********	Report MGD	********	Report	CONTINUOUS	RECORDER
EFFLUENT FLOW – ANNUAL AVERAGE [7]	********	********	Report MGD	********	*********	CONTINUOUS	RECORDER
EFFLUENT FLOW	********	********	Report MGD	********	*********	CONTINUOUS	RECORDER
BOD_5 [6] *(May 1 - October 31)* *(November 1 – April 30)*	50 lb/day 270 lb/day	68 lb/day 405 lb/day	5.6 mg/L 30 mg/L	7.5 mg/L 45 mg/L	Report mg/L	1/WEEK	24-HOUR COMPOSITE[5]
BOD_5 Removal [6]	≥ 85%	********	********	********	********	********	********
TSS [6] *(May 1-October 31)* *(November 1 – April 30)*	50 lb/day 270 lb/day	68 lb/day 405 lb/day	5.6 mg/L 30 mg/L	7.5 mg/L 45 mg/L	Report mg/L	1/WEEK	24-HOUR COMPOSITE[5]
TSS Removal [6]	≥ 85%	********	********	********	********	********	********
pH RANGE [8]	6.5 - 8.3 S.U.					1/DAY	GRAB
ESCHERICHIA COLI (*E. coli*) [9] *(April 1 – October 31)*	********	********	126 cfu/100 mL	********	409 cfu/100 mL	1/WEEK	GRAB
TOTAL COPPER [10]	********	********	10.3 µg/L	********	15.3 µg/L	1/MONTH	24-HOUR COMPOSITE[5]
DISSOLVED OXYGEN *(April 1-October 31)*	NOT LESS THAN 6.0 mg/L (daily minimum)					1/WEEK	GRAB

Sampling Location: Effluent cascade to Cranberry River

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A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001** to Cranberry River. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS [1,2,3]	
PARAMETER	**AVERAGE MONTHLY [4]**	**AVERAGE WEEKLY[4]**	**AVERAGE MONTHLY [4]**	**AVERAGE WEEKLY[4]**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
AMMONIA-NITROGEN [6,11] *(May 1 – October 31)*	5.0 lb/day	7.5 lb/day	0.56 mg/L	0.84 mg/L	Report mg/L	1/WEEK	24-HOUR COMPOSITE[5]
(November 1 – April 30)	56.7 lb/day	*********	6.3 mg/L	*********	Report mg/L	2/MONTH	
TOTAL KJELDAHL NITROGEN [6,11] TOTAL NITRATE/NITRITE [6,11] TOTAL NITROGEN [6,11,13] *(May 1 – October 31)*	Report lb/day	*********	Report mg/L	*********	Report mg/L	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL KJELDAHL NITROGEN [6,11] TOTAL NITRATE/NITRITE [6,11] TOTAL NITROGEN [6,11,13] *(November 1 – April 30)*	Report lb/day	*********	Report mg/L	*********	Report mg/L	1/MONTH	24-HOUR COMPOSITE[5]
TOTAL PHOSPHORUS[6,12,13] *(April 1 – October 31)*	0.79 lb/day	*********	0.1 mg/L	*********	Report mg/L	3/WEEK	24-HOUR COMPOSITE[5]
(November 1 – March 31)	1.19 lb/day		0.2 mg/L			1/WEEK	

Sampling Location: Effluent cascade to Cranberry River

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A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001** to Cranberry River. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS [1,2,3]	
PARAMETER	**AVERAGE MONTHLY [4]**	**AVERAGE WEEKLY[4]**	**AVERAGE MONTHLY [4]**	**AVERAGE WEEKLY[4]**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
WHOLE EFFLUENT TOXICITY[14, 15, 16, 17]	Acute $LC_{50} \geq 100\%$ Chronic C-NOEC $\geq 93\%$					2/YEAR	24-HOUR COMPOSITE [5]
Hardness [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]
Total Recoverable Aluminum [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]
Total Recoverable Cadmium [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]
Total Recoverable Copper [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]
Total Recoverable Nickel [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]
Total Recoverable Lead [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]
Total Recoverable Zinc [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]

Sampling Location: Effluent cascade to Cranberry River

A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001** to Cranberry River. The receiving water shall be monitored as specified below.

AMBIENT CHARACTERISTIC	AMBIENT REPORTING REQUIREMENTS					MONITORING REQUIREMENTS [1,2,3]	
PARAMETER	**AVERAGE MONTHLY [4]**	**AVERAGE WEEKLY[4]**	**AVERAGE MONTHLY [4]**	**AVERAGE WEEKLY[4]**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Hardness [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab
pH[17]	*********	*********	*********	*********	Report S.U.	2/YEAR	Grab
Temperature[17]	*********	*********	*********	*********	Report ºC	2/YEAR	Grab
Total Recoverable Aluminum [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab
Total Recoverable Cadmium [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab
Total Recoverable Copper [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab
Total Recoverable Nickel [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab
Total Recoverable Lead [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab
Total Recoverable Zinc [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab

Sampling Location: Cranberry River at a point upstream of Outfall 001's zone of influence at a reasonably accessible location over a 1-hour period.

Footnotes:

1. Effluent samples shall be taken at a location that yields data representative of the discharge. A routine sampling program shall be developed in which samples are taken at the same location, same time and same days of the week each month. The Permittee shall submit the results to the Environmental Protection Agency Region 1 (EPA) and the State of any additional testing above that required herein, if testing is in accordance with 40 C.F.R. § 136. If there are treatment or wastewater flow changes during the compliance schedules in Section I.B. that warrant a new sampling location to obtain representative effluent samples, the location can be changed with written approval from EPA.

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).

4. In calculating and reporting the average monthly or average weekly concentration when the pollutant is not detected, assign zero to the non-detected sample result if the pollutant was not detected for all monitoring periods in the prior twelve months. If the pollutant was detected in at least one monitoring period in the prior twelve months, then assign each non-detected sample result a value that is equal to one half of the minimum level of detection for the purposes of calculating averages.

5. Each composite sample will consist of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.

6. Use influent flow rate to calculate mass loading.

7. Report annual average, monthly average, and the maximum daily flow in million gallons per day (MGD). The limit is an annual average, which shall be reported as

a rolling average. The value will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows of the previous eleven months.

8. 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.).

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

10. Copper analysis must be completed using a test method in 40 C.F.R. § 136 that achieves a minimum level no greater than 3 µg/L.

11. Ammonia nitrogen, total Kjeldahl nitrogen and total nitrate + nitrite nitrogen samples shall be collected concurrently. The results of these analyses shall be used to calculate both the concentration and mass loadings of total nitrogen (total nitrogen = total Kjeldahl nitrogen + total nitrate/nitrite nitrogen).

    The total nitrogen loading values reported each month shall be calculated as follows: Total Nitrogen (lbs/day) = [(average monthly total nitrogen concentration (mg/l) * total monthly influent flow (Millions of Gallons (MG)) / # of days in the month] *8.34

12. The 0.79 lb/day total phosphorus limit is a seasonal average limit for the period April 1 – October 31. The seasonal mass total phosphorus load shall be calculated as the arithmetic mean of the seven monthly average total phosphorus loads for the months of April through October, and shall be reported in November of each year.

    The 1.19 lb/day total phosphorus limit is a seasonal average limit for the period November 1 – March 31. The seasonal mass total phosphorus load shall be calculated as the arithmetic mean of the five monthly average total phosphorus load for the months of November 1 – March 31, and shall be reported in April of each year.

13. See Section I.B. for special conditions related to nitrogen and phosphorus.

14. The Permittee shall conduct acute toxicity tests (LC_{50}) and chronic toxicity tests (C-NOEC) in accordance with test procedures and protocols specified in **Attachments A and B** of this permit. LC_{50} and C-NOEC are defined in Part II.E. of this permit. The Permittee shall test the daphnid, *Ceriodaphnia dubia*, and the fathead minnow, *Pimephales promelas*. Toxicity test samples shall be collected and tests completed during the same weeks each time of calendar quarters ending February 28 and August 31. The test results shall be submitted as an attachment to the monthly DMR submittal immediately following the completion of the test.

15. The receiving water chemical analysis represents analysis of the receiving water

sample collected as part of the WET testing requirements. Such samples shall be taken at a location that provides a representative analysis of the receiving water upstream of the permitted discharge's zone of influence as specified in **Attachment A**. If toxicity test(s) using the receiving water as diluent show the receiving water to be toxic or unreliable, the Permittee shall either follow procedures outlined in **Attachment A**, Section IV., DILUTION WATER, or the Permittee shall follow the Self-Implementing Alternative Dilution Water Guidance found in *NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs)*.

16. The Permittee shall conduct the analyses specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS, of this permit. For Part I.A.1., Whole Effluent Toxicity Testing, the Permittee shall report the results for the effluent sample. For Part I.A.1., Receiving Water Chemical Analysis, the Permittee shall report the results for the receiving water sample. Minimum levels and test methods are specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS.

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

Part I.A. continued

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

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

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

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

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

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

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

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

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

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

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

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

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

B. SPECIAL CONDITIONS

1. Total Nitrogen

   a. Within **one year of the effective date of the permit**, the permittee shall complete an evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen in order to maintain the annual average mass discharge of total nitrogen at less than the baseline mass loading of 86.2 lb/day, and submit a report to EPA and MassDEP documenting this evaluation and presenting a description of recommended operational changes. The methods to be evaluated include, but are not limited to, operational changes designed to enhance nitrification (seasonal and year-round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. This report may be combined with the permittees' annual nitrogen report under Part I.B.1.b, if both reports are submitted to EPA and MassDEP by February 1st.

   b. The permittee shall also submit an annual report to EPA and the MassDEP, by **February 1st** each year, that summarizes activities related to optimizing nitrogen removal efficiencies, documents the annual nitrogen discharge load from the facility, and tracks trends relative to the previous year. If, in any year, the treatment facility discharges in excess of 86.2 lb/day TN on an annual average basis, the annual report shall include a detailed explanation of the reasons why TN discharges have increased, including any changes in influent flows/loads and any operational changes. The report shall also include all supporting data.

2. Total Phosphorus

   In order to comply with the permit limits, the Permittee shall take the following actions with regard to total phosphorus:

   a. The interim monthly average total phosphorus interim limits are 0.2 mg/L from May 1 through October 31 and 0.3 mg/L from November 1 through April 30. The interim loading limits are 0.79 lb/day from May 1 through October 31 and 1.19 lb/day from November 1 through March 1, calculated using the flow rate through Outfall 001. The permittee shall meet these limits until it attains compliance with the final phosphorus effluent limits in Part I.A.1.

   b. No later than **December 31, 2019**, complete a conceptual design to meet the total phosphorus limit.

   c. Complete design plans and specifications for necessary upgrades no later than **July 31, 2021**.

   d. Start construction of necessary upgrades no later than **June 30, 2022**.

   e. Attain compliance with the final effluent limits for total phosphorus no later than **December 31, 2024**.

f. Until the limit is achieved, the Town shall submit an Annual Compliance Schedule Report to EPA and MassDEP no later than **December 31** of each year. The Report shall at a minimum:
   i. Describe the activities undertaken during the calendar year directed at achieving compliance with the final total phosphorus limits;
   ii. Identify all plans, reports, and other deliverables related to the compliance schedule completed and submitted during the calendar year;
   iii. Describe the expected activities to be taken during the next calendar year in order to achieve compliance with the total phosphorus limits;
   iv. Identify any anticipated or potential areas of noncompliance with this Compliance Schedule;
   v. Describe the Town's plans with respect to the wetland beds. The report shall describe whether the Town plans to abandon, line, deposit material into, or build over the wetland beds. The report shall describe whether the town plans to cease directing wastewater flow to the wetland beds and if so, the timeline for ceasing the flow of wastewater to the wetland beds.

g. The Town shall post the report on the Town website simultaneously with the submission of the report to EPA and MassDEP.

C. UNAUTHORIZED DISCHARGES

This permit authorizes discharges only from the outfall(s) listed in Part I.A.1, in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit and shall be reported to EPA and MassDEP in accordance with Section D.1.e.(1) of the General Requirements of this permit (Twenty-four-hour reporting).

Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes DEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at https://www.mass.gov/how-to/sanitary-sewer-overflowbypassbackup-notification.

D. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

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

1. Maintenance Staff

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

4. Collection System Mapping

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

a. All sanitary sewer lines and related manholes;

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

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

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

e. All pump stations and force mains;

f. The wastewater treatment facility(ies);

g. All surface waters (labeled);

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

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

j. The scale and a north arrow; and

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

5. Collection System O&M Plan

The permittee shall develop and implement a Collection System O&M Plan.

a. Within six (6) months of the effective date of the permit, the permittee shall submit to EPA and MassDEP

(1) A description of the collection system management goals, staffing, information management, and legal authorities;
(2) A description of the collection system and the overall condition of the collection system including a list of all pump stations and a description of recent studies and construction activities; and
(3) A schedule for the development and implementation of the full Collection System O&M Plan including the elements in paragraphs b.1. through b.8. below.

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

(1) The required submittal from paragraph 5.a. above, updated to reflect current information;
(2) A preventive maintenance and monitoring program for the collection system;
(3) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;
(4) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;
(5) Identification of known and suspected overflows and back-ups, including manholes. A description of the cause of the identified overflows and back-ups, corrective actions taken, and a plan for addressing the overflows and back-ups consistent with the requirements of this permit;
(6) A description of the permittee's programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts; and
(7) An educational public outreach program for all aspects of I/I control, particularly private inflow.
(8) An Overflow Emergency Response Plan to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the permit.

6. Annual Reporting Requirement

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 MassDEP 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. If treatment plant flow has reached 80% of its design flow [0.864 MGD] based on the annual average flow during the reporting year, or there have been capacity related overflows, submit a calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year; and

f. 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.

E. 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[1] it owns and operates.

F. INDUSTRIAL USERS

1. The Permittee shall submit to EPA and MassDEP the name of any Industrial User (IU) subject to Categorical Pretreatment Standards under 40 C.F.R. § 403.6 and 40 C.F.R. Chapter I, Subchapter N (§§ 405-415, 417-436, 439-440, 443, 446-447, 454-455, 457-461, 463-469, and 471 as amended) who commences discharge to the POTW after the effective date of this permit.

   This reporting requirement also applies to any other IU who discharges an average of 25,000 gallons per day or more of process wastewater into the POTW (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastewater which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the POTW; or is designated as such by the Control Authority as defined in 40 C.F.R. § 403.12(a) 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 reports (baseline monitoring reports, 90-day compliance reports, periodic reports on continued compliance, etc.) from industrial users subject to Categorical Pretreatment Standards under 40 C.F.R. § 403.6 and 40 C.F.R. Chapter I, Subchapter N (§§ 405-415, 417-436, 439-440, 443, 446-447, 454-455, 457-461, 463-469,

[1] As defined at 40 CFR §122.2, which references the definition at 40 CFR §403.3

and 471 as amended), the Permittee shall forward all copies of these reports within ninety (90) days of their receipt to EPA and MassDEP.

G. 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 Section 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 including the following elements:

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

   Which of the 40 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.

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

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

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

H. MONITORING AND REPORTING

The monitoring program in the permit specifies sampling and analysis, which will provide continuous information on compliance and the reliability and effectiveness of the installed pollution abatement equipment. The approved analytical procedures found in 40 CFR Part 136 are required unless other procedures are explicitly required in the permit. The permittee is obligated to monitor and report sampling results to EPA and the MassDEP within the time specified within the permit.

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

[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

The permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and MassDEP 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 MassDEP. NetDMR is accessed from the internet at http://www.epa.gov/netdmr.

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. Because the due dates for reports described in this permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the particular report due date specified in this permit.

3. Submittal of Biosolids/Sewage Sludge Reports

By February 19 of each year, the permittee must electronically report their annual Biosolids/Sewage Sludge Report for the previous calendar year using EPA's NPDES Electronic Reporting Tool ("NeT") found on the internet at https://www.epa.gov/compliance/npdes-ereporting.

4. Submittal of Requests and Reports to EPA/OEP

The following requests, reports, and information described in this permit shall be submitted to the EPA/OEP NPDES Applications Coordinator in the EPA Office Ecosystem Protection (OEP).

a. Transfer of Permit notice
b. Request for changes in sampling location
c. Request for reduction in testing frequency
d. Request for reduction in WET testing requirement
e. Report on unacceptable dilution water / request for alternative dilution water for WET testing
f. Notification of proposal to add or replace chemicals and bio-remedial agents including microbes

These reports, information, and requests shall be submitted to EPA/OEP electronically at R1NPDES.Notices.OEP@epa.gov or by hard copy mail to the following address:

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

6. Submittal of Reports in Hard Copy Form

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

a. Written notifications required under Part II
b. Notice of unauthorized discharges, including Sanitary Sewer Overflow (SSO) reporting

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

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

7. State Reporting

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

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

8. Verbal Reports and Verbal Notifications

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

EPA's Office of Environmental Stewardship at: 617-918-1510

and to

MassDEP's Emergency Response at 888-304-1133.

I. STATE PERMIT CONDITIONS

1. This authorization to discharge includes two separate and independent permit authorizations. The two permit authorizations are (i) a federal National Pollutant Discharge Elimination

System permit issued by the U.S. Environmental Protection Agency (EPA) pursuant to the Federal Clean Water Act, 33 U.S.C. §§ 1251 et seq.; and (ii) an identical state surface water discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection (MassDEP) pursuant to the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and 314 C.M.R. 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.

2. This authorization also incorporates the state water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. § 124.53, M.G.L. c. 21, § 27 and 314 CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality certification for the permit are hereby incorporated by reference into this state surface water discharge permit as special conditions pursuant to 314 CMR 3.11.

3. Each agency shall have the independent right to enforce the terms and conditions of this permit. 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 this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as a NPDES Permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of federal law, this permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.

ATTACHMENT A

USEPA REGION 1 FRESHWATER ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

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

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

III. SAMPLE COLLECTION

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

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

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

IV. DILUTION WATER

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

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

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

and

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

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

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

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

V. TEST CONDITIONS

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

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

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

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

Footnotes:

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

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

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

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

Footnotes:

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

VI. CHEMICAL ANALYSIS

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

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

Notes:

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

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

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

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

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

ATTACHMENT B

FRESHWATER CHRONIC TOXICITY TEST PROCEDURE AND PROTOCOL

USEPA Region 1

I. GENERAL REQUIREMENTS

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

- **Daphnid (Ceriodaphnia dubia) Survival and Reproduction Test.**
- **Fathead Minnow (Pimephales promelas) Larval Growth and Survival Test.**

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

II. METHODS

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

III. SAMPLE COLLECTION AND USE

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

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

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

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

IV. DILUTION WATER

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

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

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

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

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

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

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

Director
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

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

V.1. Use of Reference Toxicity Testing

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

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

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

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

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

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

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

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

VI. CHEMICAL ANALYSIS

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

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

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1, 4]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3, 4]	x		0.02
Alkalinity[4]	x	x	2.0
pH[4]	x	x	--
Specific Conductance[4]	x	x	--
Total Solids[6]	x		--
Total Dissolved Solids[6]	x		--
Ammonia[4]	x	x	0.1
Total Organic Carbon[6]	x	x	0.5
Total Metals[5]			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 2340B (hardness by calculation)
  -Method 2340C (titration)

2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 4500-CL E Low Level Amperometric Titration
  -Method 4500-CL G DPD Colorimetric Method
- USEPA 1983. Manual of Methods Analysis of Water and Wastes
  -Method 330.5

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

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

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

2. Test Variability (Test Sensitivity)

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

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

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

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

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

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

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

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

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

2. *Pimephales promelas*

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

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

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

3. *Ceriodaphnia dubia*

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

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

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

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

In addition to the summary sheets the report must include:

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

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

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

A. GENERAL REQUIREMENTS

1. Duty to Comply

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

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

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

(1) Criminal Penalties

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

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

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

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

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

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

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

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

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

2. Permit Actions

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

condition.

3. Duty to Provide Information

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

4. Oil and Hazardous Substance Liability

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

5. Property Rights

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

6. Confidentiality of Information

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

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

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

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

7. Duty to Reapply

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

8. State Authorities

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

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

9. Other Laws

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

B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce Not a Defense

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

3. Duty to Mitigate

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

4. Bypass

a. Definitions

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

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

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

c. Notice

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

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

d. *Prohibition of bypass.*

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

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

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

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

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

5. Upset

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

improper operation.

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

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

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

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

C. MONITORING REQUIREMENTS

1. Monitoring and Records

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

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

c. Records of monitoring information shall include:

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

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

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

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

2. Inspection and Entry

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

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

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

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

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

D. REPORTING REQUIREMENTS

1. Reporting Requirements

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

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

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

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

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

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

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

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

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

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

e. *Twenty-four hour reporting.*

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

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

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

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

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

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

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

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

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

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

2. Signatory Requirement

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

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

3. Availability of Reports.

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

E. DEFINITIONS AND ABBREVIATIONS

1. General Definitions

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

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

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

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

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

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

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

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

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

Bypass see B.4.a.1 above.

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

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

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

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

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

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

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

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

Direct Discharge means the "discharge of a pollutant."

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

Discharge

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

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

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

Discharge of a pollutant means:

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

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

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

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

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

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

Agency.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Municipality

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

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

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

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

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

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

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

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

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

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System."

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

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

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

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

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

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

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

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

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

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

(a) Sewage from vessels; or

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

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

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

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

Publicly owned treatment works (POTW) means a treatment works as defined by Section 212 of the Act, which is owned by a State or municipality (as defined by Section 504(4) of the Act). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in Section 502(4) of the Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Upset see B.5.a. above.

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

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

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

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

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

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

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

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

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

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

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

(f) The territorial sea; and

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

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

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

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

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

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

2. Commonly Used Abbreviations

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

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

RESPONSE TO COMMENTS
NPDES PERMIT NO. MA0100919
SPENCER WASTEWATER TREATMENT PLANT
SPENCER, MASSACHUSETTS

From February 26, 2018 through March 28, 2018, the U.S. Environmental Protection Agency Region 1 (EPA New England[1]) and the Massachusetts Department of Environmental Protection (MassDEP) (collectively, the "agencies") solicited public comments on the draft National Pollutant Discharge Elimination System (NPDES) permit to be reissued to the Spencer Wastewater Treatment Plant (WWTP) in Spencer, MA.

EPA New England and MassDEP received written comments from the following parties:

- Wright-Pierce on behalf of the Town of Spencer, Massachusetts,
- Connecticut Department of Energy and Environmental Protection (CT DEEP),
- James P. Vander Salm on behalf of Quaboag Quacumquasit Lake Association (QQLA),
- Chicopee 4Rivers Watershed Council (C4R),
- Connecticut River Conservancy (CRC),
- Connecticut Fund for the Environment (CFE),
- The Town of Sturbridge, Massachusetts,
- Carl D. Nielsen,
- Lynn Eckhert,
- Bob Shields,
- Leland Moulton,
- Jeff Clark,
- William Bonney,
- Doris Smith,
- Sandra and Martin Bannish,
- Stephen Marshall,
- Donald Taft,
- Carl F. Nielsen,
- Carol Neill,
- Ed Perlak,

[1] EPA New England is also referred to in the text as "EPA."

- Louis Fazen,
- Howard Ser,
- Constance Montross,
- Bill Seabourne,
- Doug Vizard
- John Vacon,
- Meg Noyes,
- Sheila Goodwin,
- Marita Tasse,
- Randy Weiss, and
- Curtis Fazen.

EPA also held a public hearing in the Town of Spencer on March 26, 2018 during which the following persons presented oral comments: Kevin Olson, Meg Noyes, Carl D. Nielsen, James Vander Salm, Randy Weiss, and Larry Dufault.

The following are responses by the agencies to those comments and descriptions of any changes made to the public-noticed permit because of those comments.

Although the agencies' knowledge of the facility has benefited from the various comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permit that warranted the agencies exercising discretion to reopen the public comment period. The agencies do, however, make certain 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 also be obtained by writing or calling Robin Johnson, United States Environmental Protection Agency, 5 Post Office Square, Suite 100 (Mail Code: OEP06-1), Boston, Massachusetts 02109-3912; Telephone (617) 918-1045.

Table of Contents

I. Changes to the Permit

A. COVER PAGE

- Because the agencies received comments, they removed the following language: "* Pursuant to 40 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."

- The agencies changed the title for Lealdon Langley from "Director, Massachusetts Wastewater Management Program" to "Director, Division of Watershed Management."

B. PART I.A.

- In Part I.A.1., the agencies changed the beginning of the warm season phosphorus limits from May 1 to April 1. Accordingly, the end date for the cold season phosphorus limit changed from April 30 to March 31 (see Response C2).

- In Part I.A.1., the agencies added the footnote "4", which pertains to calculating monthly and weekly averages, to the Average Weekly column head on page 2.

- In Part I.A.1., the agencies modified Footnotes 2 and 3 with updated standard language regarding sufficiently sensitive methods.

C. PART I.B.

- In Part I.B.2.a., the agencies added clarifying language that the interim phosphorus load limits are based on the flow rate through Outfall 001 (see Response A4).

- In Part I.B.2.b., the agencies changed the deadline from December 31, 2018, to December 31, 2019 (see Response A8).

- In Part I.B.2.c., the agencies changed the deadline from July 31, 2020, to July 31, 2021 (see Response A9).

- In Part I.B.2.d., the agencies changed the deadline from May 1, 2021, to June 30, 2022 (see Response A10).

- In Part I.B.2.f., the agencies added requirements that the Annual Compliance Schedule Report a) describe activities taken during the previous year directed at achieving compliance with the final total phosphorus limits, b) identify related plans and deliverables, c) describe planned activities for the next year, d) identify potential areas of non-compliance, and e) describe plans for the wetland beds (see Response C5).

- In Part I.B.2.g., the agencies added a requirement that the Town post the Annual Compliance Schedule Report on the Town website (see Response C5).

D. PART I.H.

- Under Part I.H.2., Submittal of Reports as NetDMR Attachments, the agencies deleted the following text: "permittees shall continue to send hard copies of reports other than DMRs to MassDEP until further noticed from MassDEP" (see Response A13).

- Under Part I.H.7., State Reporting, the agencies changed the instructions for submitting hard copy reports to MassDEP to state that only Whole Effluent Toxicity Test reports shall be submitted to MassDEP in hard copy (see Response A13).

II. Written Comments

A. COMMENTS SUBMITTED MARCH 27, 2018 BY WRIGHT-PIERCE ON BEHALF OF THE TOWN OF SPENCER

Comment A1: Outfall Location

Part 1 cover page – Outfall location is Cranberry River, not the Seven Mile River. As discussed in previous meetings with EPA and DEP, the Town would prefer to change the outfall location to the Seven Mile River in the future upgrade. Will changing the outfall as part of the future upgrade require a new permit?

Response A1

Like the Draft Permit, the Final Permit authorizes discharge to the Cranberry River. A change in outfall location to a different receiving water could require a modification or, if requested after the five-year permit term has run, a re-issued permit. In either case, the public participation requirements of 40 CFR § 124 would apply. In addition, differences between the two receiving waters—for instance, in ambient pollutant concentrations and available dilution—could lead to new or revised permit limits, conditions, or both.

Comment A2: Outfall Relocation

b. Draft Permit – The 7-day, 10-year low flow (7Q10) in the draft permit is based on a Seven Mile River gage upstream of the WWTP that has a drainage area of 8.81 sq. mi. The Cranberry River drainage area (6.52 sq. mi.) is used for dilution/loading calculations, where the Spencer WWTP outfall is located. Would changing the outfall location to the Seven Mile River in the future upgrade change the permit limits based on a new dilution factor?

Response A2

In the Draft Permit, EPA estimated the 7Q10 for the Cranberry River upstream of the WWTP outfall using a flow factor derived from data for a gage on the Sevenmile River upstream of its confluence with the Cranberry River, for the reasons given in the Fact Sheet. Relocating the outfall to the Sevenmile River could affect three effluent limitations

in the permit that are based on dilution factors, which are copper, winter ammonia, and whole effluent toxicity. A changed dilution factor would not, however, affect other effluent limits that are based on Total Maximum Daily Loads (TMDLs), (nitrogen and phosphorus), secondary treatment standards (BOD_5 and TSS), or that do not account for dilution (pH, E. coli, dissolved oxygen).

Below, EPA calculates a revised dilution factor for those pollutants whose limits are based on dilution, using data for the same period as the 7Q10 calculation in the Fact Sheet for the Cranberry River.

7Q10 at USGS 01175670 - Sevenmile River near Spencer, MA 10/10/1986 – 10/10/2016 (30 years) = 0.165 cubic feet per second (cfs)

Drainage Area = 8.81 square miles

> Flow factor for USGS 01175670 = 0.165 cfs / 8.81 square miles = 0.0187 cfs/sq. mi.

Drainage Area at Presumed Relocated Outfall = 31.5 square miles

Using a low-flow factor of 0.0187 cfs per square mile yields a receiving water 7Q10 flow of about 0.59 cfs.

> 7Q10 upstream of Spencer WWTP Outfall = 0.0187 cfs/sq. mi x 31.5 sq. mi. = 0.59 cfs

Spencer WWTP design flow = 1.08 MGD x 1.55 cfs/MGD = 1.67 cfs

Dilution Factor = (Facility Flow + 7Q10)/Facility Flow

Dilution Factor = (1.67 cfs + 0.59 cfs)/1.67 cfs = 1.35

The 7Q10 (0.59 cfs) in the Sevenmile River near the Spencer WWTP for this period is higher than the Cranberry River (0.122 cfs). *See* FS at 13-14. Consequently, the Spencer WWTP discharge's contribution to flow in the Sevenmile River during the 7Q10 would be lower than to the Cranberry. In both cases, however, the Spencer WWTP would still contribute a sizeable proportion of the flow in the respective waterbody during the 7Q10. These facts, taken together, but without more, suggest that limits for copper, winter ammonia, and whole effluent toxicity *might* be less stringent, though likely only slightly less stringent. It is important to note, however, that EPA has no data for upstream pollutant concentrations in the Sevenmile, which are important in calculating reasonable potential and resultant water quality-based effluent limits. Thus, it really is difficult to determine whether, and by how much, the limits would differ.

Comment A3: BOD or CBOD Limit
Part 1 A.1 - BOD limit – Has EPA considered changing to a CBOD limit?

Response A3
The effluent limits for 5-day biochemical oxygen demand (BOD_5) in the Draft Permit are based on a 1981 Chicopee River Basin Water Quality Management Plan prepared by the Massachusetts Department of Environmental Quality Engineering. The purpose of BOD_5 and $CBOD_5$ limits is to prevent oxygen depletion in the aquatic environment due to discharges of wastewater effluent.

Secondary treatment requirements are based on reducing oxygen demand due to the carbonaceous component of the organic material in the effluent. In 1984, EPA introduced the $CBOD_5$ (five-day carbonaceous biochemical oxygen demand) as an alternative to BOD_5. At the time, some newer secondary treatment facilities were experiencing higher than expected BOD_5 results due to the presence of ammonia and nitrifying bacteria in the discharge, causing nitrogenous oxygen demand (NOD). Some operators were manipulating secondary treatment to eliminate the influence of NOD to meet secondary treatment requirements in a way that improved compliance with BOD_5 limits but led to poorer effluent quality (49 FR 36988, September 20, 1984).

Thus far, EPA has received no data from the permittee suggesting that a $CBOD_5$ limit would be a more appropriate technology-based limit for the Spencer WWTP. Spencer WWTP has violated the BOD_5 limits only three times between 2011 and 2016. Two of the violations were in April 2014 and one was in September 2015. There does not appear to be a pattern of noncompliance with the BOD_5 limits in the 2007 permit or any other information available to recommend a change to a $CBOD_5$ limit.

The permittee, if it wishes, may collect data showing that $CBOD_5$ would be a more representative measure of the oxygen demand related to organic matter in the Spencer WWTP effluent than BOD_5. If the permittee submits that information with an application for a permit modification or with their application for permit reissuance, then EPA will consider changing the technology-based limits from BOD_5 to $CBOD_5$.

There is no change to the Final Permit because of this comment.

Comment A4: Mass-based Phosphorus Limits
Part 1 A.1 – Total Phosphorous – To stay consistent with the other permit limits listed within the draft Spencer permit, EPA should use the 1.08 MGD design flow in the mass loading calculations for total phosphorous. Using the 0.1 mg/L and 0.2 mg/L concentration limits (for the different seasons) at the 1.08 MGD design flow results in mass loading limits for total phosphorous of 0.90 lbs./day and 1.80 lbs./day, respectively. The permit limits for total phosphorous mass loadings should be changed to the numbers shown above (0.90 lbs./day and 1.80 lbs./day, respectively).

Response A4

The phosphorus limits in the NPDES permit must be consistent with the assumptions and requirements of any available wasteload allocation for the discharge in an applicable TMDL. *See* 40 CFR § 122.44(d)(1)(vii)(B). The TMDL of Total Phosphorus for Quaboag and Quacumquasit Ponds (QQ TMDL) sets wasteload allocations for total phosphorus from the Spencer WWTP Outfall 001 of 0.79 lb/day from May through October and 1.19 lb/day from November through April. Fact Sheet ("FS") at 23-24; *see also* QQ TMDL at 42, Table 10. The mass loading limits requested in the comment are higher than the wasteload allocations for the Spencer WWTP established in the QQ TMDL and are thus inconsistent with 40 CFR § 122.44(d)(1)(vii)(B).

While the agencies therefore decline to make the change to the final limits requested in the comment, we take the opportunity here to clarify the interim limits. As explained in the Fact Sheet, the Final Permit establishes concentration-based and mass-based limits for phosphorus that are more stringent than the corresponding limits in the 2007 permit. FS at 24-25. The agencies determined that the facility cannot immediately comply with the more stringent phosphorus limits and will have to undergo an upgrade to remove enough phosphorus to meet them. FS at 25. For this reason, the Draft Permit proposed a compliance schedule, which established a deadline of December 31, 2024, for meeting the phosphorus limits. Draft Permit Part I.B.2.e; FS at 25. The agencies have not changed this deadline in the Final Permit. *See* Part I.B.2.e.

The Draft Permit also proposed interim limits applicable before December 31, 2024, that are numerically identical to the limits for total phosphorus in the 2007 permit. Draft Permit Part I.B.2.a.; FS at 24. While we received no comments substantively addressing these interim limits, the agencies noticed, while considering Comment A4, that Part I.B.2.a. does not specify the method for calculating compliance with the mass-based interim limits and that there could potentially be confusion once these interim limits became applicable. To avoid confusion (and because the permittee cannot immediately comply with the more stringent limits in the Final Permit), the agencies have amended Part I.B.2.a. to clarify that compliance with the mass-based interim limits for total phosphorus are to be calculated using the plant's effluent flow rate. In other words, the interim limits for phosphorus in the Final Permit are equivalent to the phosphorus limits in the 2007 permit.

Comment A5: Sample Locations

Part 1 A.1, Table Footnote and Footnote 1 - Table footnote on page 2 through 4 declares effluent sample location to be the outfall, whereas the footnote 1 on page 5 says samples should be taken at a location that yields data representative of the discharge. Currently the composite sample is taken at the UV tank and grab samples are taken at the outfall.

Response A5

If the permittee uses sampling locations that provide representative samples of the discharge for the parameter of interest, they are in compliance with the permit.

Comment A6: Calculation of Total Nitrogen Benchmark
Special Conditions, Part B.1 – Total Nitrogen - Request Total Nitrogen load calculations to be based on 12-month rolling average of 0.77 MGD and the average TN concentration from WWTP data (2011-2016) of 14.3 mg/L. New mass load would be 0.77 MGD x 14.30 mg/L x 8.34 = 91.8 lbs/day instead of the 86.2 lbs/day in the permit.

Response A6
Although the updated baseline nitrogen load was increased to include the total wastewater flow through the WWTP, the updated baseline is still reflective of the 2004-2005 nitrogen loading.

To calculate the updated baseline load, EPA used the reported 2004-2005 influent total nitrogen concentration from the Spencer WWTP. *See also* Response B3.

Comment A7: Request for AO
Special Conditions, Part B.2 – Total Phosphorous – The Town requests consideration for the compliance schedule to be removed from the NPDES permit and instead negotiate a separate Administrative Order (AO) with EPA to establish the compliance requirements.

Response A7
EPA has the discretion to include compliance schedules in NPDES permits, *see* 40 CFR § 122.47(a), and included a schedule for compliance with the concentration-based effluent limits for total phosphorus in the Draft Permit for the Spencer WWTP, *see* Draft Permit Part I.B.2., as EPA has done in many other recent Draft Permits issued for publicly owned treatment works (POTWs) in Massachusetts, *see, e.g.*, MWRA-Clinton WWTP, Brockton AWRF, Adams WWTP. The comment does not provide a rationale for its request to break with EPA's practice in this case and remove the schedule from the Final Permit. Including the compliance schedule in the permit rather than in a separate administrative order is reasonable and makes sense from the standpoint of administrative efficiency. The public has had an opportunity to comment on the permit, inclusive of a compliance schedule. Considering this and the level of public interest in the WWTP upgrade schedule, EPA has decided to retain the compliance schedule in the permit, with some minor changes, *see* Responses A8, A9, and C9).

Comment A8: Schedule
Special Conditions, Part B.2.b – Total Phosphorous – Requires Town to submit a conceptual design report for phosphorous removal upgrade by 12/31/18. This schedule is not reasonable nor achievable by the Town. The Town requests this requirement be moved to at least December 31, 2019. This allows the Town to appropriate funds for the design of the upgrade at the 2019 Annual Town Meeting (first Thursday in May).

Response A8
Because the Town needs to wait until the 2019 Town Meeting to approve funding for the upgrade design, the agencies have moved the interim requirement for a conceptual design report to December 31, 2019.

Comment A9: Design Plan Deadline
Special Conditions, Part B.2.c – Total Phosphorous – Requires Town to submit complete design plans and specifications for phosphorous removal upgrade by July 31, 2020. This schedule may not be achievable by the Town. The Town requests this schedule requirement be moved to at least Spring of 2021. This allows the Town to appropriate construction funds for the upgrade at the Annual Town Meeting in May 2021 and apply for SRF loan funding by October 15, 2021.

Response A9
The agencies have moved the interim requirement for submitting complete design plans to July 31, 2021. This will give the Town enough time to evaluate design alternatives and complete design of the chosen phosphorus removal alternative.

Comment A10: Construction Deadline
Special Conditions, Part B.2.d – Total Phosphorous – Requires Town to start construction for phosphorous removal upgrade by May 1, 2021. This schedule may not be achievable by the Town. The Town requests this requirement be moved to the end of June 2022. This is also the deadline required by projects funded through the SRF loan program.

Response A10
The agencies have moved the interim requirement to start construction to June 30, 2022. Given that the deadline for submitting complete design documents has been moved to July 31, 2021, it is reasonable to allow about a year for bidding and contractor selection before construction begins. Moreover, this change and those noted in Responses A8 and A9 relate to the timing for interim requirements only. They do not change the deadline for compliance with the final effluent limits for total phosphorus, which remains December 31, 2024.

Comment A11: Compliance Deadline
Special Conditions, Part B.2.e – Total Phosphorous – Requires Town to attain compliance for phosphorous limits by December 31, 2024. This date may be attainable for the Town, but it is dependent on many variables, including Town votes for fund appropriation, SRF acceptance, design and permitting, and bidding/construction schedules for contractors.

Response A11
The comment is noted for the record.

Comment A12: Alternate Power Source
Alternate Power Source, Part E - What does the Town have to provide for this section? Clarification regarding this item is requested. The WWTP currently has two backup power generators. Critical process equipment is powered by one generator and the blowers are powered by the second generator.

Response A12
This requirement is intended to ensure that the WWTP can continue to operate and comply with permit limits and conditions in the event of a power outage. From the comment, it appears that the Spencer WWTP is meeting the requirement.

Additional information regarding alternate power sources can be found in the Power Resilience Guide for Water and Wastewater Utilities (EPA 800-R-15-004). This guide is available for download at https://www.epa.gov/sites/production/files/2016-03/documents/160212-powerresilienceguide508.pdf

More generally, EPA provides information on resilience for water utilities at https://www.epa.gov/waterresilience.

Comment A13: E-filing to MassDEP
Monitoring and Reporting, Part H.2 - Hardcopy annual reports to DEP are required. The Town requests they be able to e-file to DEP for reports as they currently do for DMRs. Remove the hardcopy requirements.

Response A13
The comment is correct that MassDEP now accepts electronic reports. The hard copy requirement has been removed from the permit for everything except WET test reports.

B. COMMENTS SUBMITTED MARCH 21, 2018 BY THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION

Comment B1: LIS TMDL History
The Connecticut Department of Energy and Environmental Protection (CTDEEP) is providing comment on the draft NPDES permit for the Spencer Wastewater Treatment Plant (WWTP) discharge. The draft permit authorizes discharges of treated wastewater to Cranberry River, a tributary of the Sevenmile and Connecticut Rivers, which subsequently flows through Connecticut to Long Island sound (LIS).

As a downstream state, Connecticut has a keen interest in sources of pollutants that can impact both the Connecticut River and LIS. LIS is affected by hypoxic conditions, which occur naturally in the summer. Hypoxia in LIS has been well documented to result from excessive amounts of nitrogen. Discharges from WWTPs contribute to the nitrogen loading to LIS.

In response to hypoxic conditions in LIS, Connecticut and New York jointly developed a Total Maximum Daily Load (TMDL) for nitrogen. This TMDL was approved by the Federal Environmental Protection Agency (EPA) in April, 2001. Please update the permit fact sheet to more accurately reflect this information relative to the LIS TMDL, as page 20 of the fact sheet suggests that only CT DEP completed the TMDL.

Response B1
EPA acknowledges the clarification that the Total Maximum Daily Load to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound ("2000 TMDL") was a collaboration among Connecticut, New York, and EPA. Since the agencies generally do not modify the Fact Sheet upon issuance of the Final Permit, this Response to Comments document serves as clarification for the administrative record.

Comment B2: TMDL Baseline Load Was Too High

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

Response B2

As noted in the comment, and as explained in the Fact Sheet, the 2000 TMDL estimated an aggregate baseline loading of nitrogen from all wastewater treatment plants in Massachusetts, New Hampshire, and Vermont (so-called out-of-basin sources) to the Connecticut River watershed. FS at 20-21. The 2000 TMDL then allocated a 25 percent reduction from this estimated loading. FS at 21. It also allocated a 58.5% nitrogen reduction to in-basin sources (with a 10% reduction allocated to nonpoint sources and the remainder assigned to point sources) and identified actions and schedules to reduce nitrogen from out-of-basin nonpoint sources (a 10% reduction) and atmospheric sources (an 18% reduction). *See* 2000 TMDL at 26. As also referenced in the comment and explained in the Fact Sheet, a review of 2004-2005 DMR data for out-of-basin sources indicated an approximately 36% reduction from the 2000 TMDL estimate. FS at 21. In other words, the 2000 TMDL estimated a baseline load based on the available information and set a WLA that required an aggregate percent reduction that the later review determined was being met. In contrast, in-basin sources in Connecticut and New York were assigned individual WLAs in the TMDL, which were expressed as mass loadings, not as percent reductions. *See* 2000 TMDL, App. C. Although it is not clear to EPA what is meant by the comment that "EPA does not allow such 'credits' regarding nitrogen load reductions to LIS where Connecticut and New York are concerned," EPA highlights these differences in the WLAs, which, again, set specific individual mass loadings for each in-basin source versus an aggregate percent reduction from all out-of-basin sources.

Nonetheless, EPA agrees that, despite the progress that has been made, EPA and the states need to continue to identify and implement programs and policies to address the adverse impacts in LIS caused by nitrogen loading and to attain water quality standards. In this permit (and considering the 36% reduction from the baseline estimate), EPA has concluded that setting a benchmark for this out-of-basin treatment facility and establishing a requirement to evaluate optimization sufficient to ensure that the aggregate 25% reduction is maintained or increased are consistent with implementing the 2000 TMDL. Furthermore, EPA recognizes that it will need to continue to assess nitrogen impacts in LIS from all sources through the Long Island Sound Nitrogen Strategy, which will include establishing thresholds for Western Long Island Sound and several coastal embayments, including the mouth of the Connecticut River. Upon completion of

establishing thresholds, areas where nitrogen watershed loading results in exceedances of thresholds will be identified, and allocations of total nitrogen loadings will be made if further reductions are necessary. EPA will use the technical information developed through the Long Island Sound Nitrogen Strategy to inform its permitting activities in the upstream states where it issues permits. If further reductions are identified as necessary for the Spencer discharge, a water quality-based limit will be added in a future permit action.

Comment B3: Spencer Benchmark Is Higher Than Current Load

EPA has decided to allow a greater cap than the baseline due to the "fact" that attenuation of nitrogen through the wetland was not considered when the baseline was determined. EPA reviewed influent and effluent nitrogen data through the onsite wetland system in order to justify a new larger nitrogen discharge of 86.2 pounds per day. However, EPA used an average concentration of 13.6 mg/L. It is common to use an average estimate where data does not exist, however, the fact sheet states that data for the spencer WWTP was collected and in fact, reviewed by EPA for the 2011-2016 time frame. This data is included in [Fact Sheet] Appendix A of the supporting information. Based on five years of data, the spencer wastewater treatment plant actually discharges an average nitrogen load of 26.73 pounds/day. This is less than the original (2004-2005) baseline cap of 63.5 pounds/day, CTDEEP questions why EPA is proposing to allow a much greater nitrogen load than the permittee can maintain based on actual data.

We would also like to remind EPA of its Enhanced Implementation Plan (EIP). Allow[ing] a nitrogen discharge greater than the baseline cap from the Spencer WWTP violates this EIP. In 2011, the five watershed states (CT, NH, MA, NH, VT) and EPA agreed upon an EIP. The plan requires EPA and the tributary states to implement a tributary state wastewater treatment plant (WWTP) permitting strategy with a goal of essentially capping existing WWTP total nitrogen loads at or near existing levels until agreement is reached on final allocations and how they will be achieved.

Response B3

Pointing to Appendix A from the Fact Sheet, the comment asserts that the agencies should have set the nitrogen benchmark for the Spencer WWTP at 26.73 lbs/day, based on 2011-2016 data. By comparison, EPA previously calculated the 2004-2005 baseline to be 63.5 lbs/day and corrected it in the Draft Permit to 86.2 lbs/day. According to the commenter, both the previously calculated baseline and the corrected baseline are too high because they are much greater than the facility's current load, which violates the Enhanced Implementation Plan ("EIP").

First, the 2011-2016 nitrogen mass load of 26.73 lbs/day in Fact Sheet Appendix A was calculated based on effluent flow rate. Thus, it is not representative of the full load from the Spencer WWTP, as explained in the Fact Sheet (and below). Second, effluent flow at the facility was lower in 2011-2016 than it was in 2004-2005, while influent flow stayed roughly the same. The average daily effluent flow from 2003-2005 was 0.55 MGD, while

the same figure is 0.28 MGD for the years 2011–2016. In contrast, influent flow remained steady, at around 0.75 MGD. Thus, the current total load from the facility is not 26.73 lbs/day.

The comment also states that EPA based the corrected 2004-2005 baseline for the Spencer WWTP on attenuation of nitrogen, which is incorrect. As stated in the Fact Sheet, the 2004-2005 estimated loading for the Spencer WWTP did not account for nitrogen loading from the facility that likely enters the Cranberry River via the facility's wetland beds. FS at 21-22. In other words, the facility's nitrogen contribution to the river in 2004-2005 was likely much higher than 63.5 lbs/day, meaning that the 2004-2005 baseline was incorrect. The Fact Sheet included no statement or assumption as to whether any nitrogen lost in the wetland beds is attenuated before entering the Cranberry River. EPA corrected the 2004-2005 baseline nitrogen load for the Spencer WWTP to more accurately portray the actual 2004-2005 nitrogen loading from the Spencer WWTP by using influent flow data rather than effluent flow data. *Id.*[2] EPA has not raised the "baseline cap" or decided to allow a "new larger nitrogen discharge." Rather, EPA corrected an oversight in the calculation of the 2004-2005 baseline load with respect to the Spencer WWTP to account for the actual nitrogen load from the facility for that period.

The purpose behind the 2004-2005 analysis was to compare the level of nitrogen loading from the out-of-basin sources during that period to the 2000 TMDL's total estimate of the loading for these sources. The TMDL called for a 25% overall reduction, and the 2004-2005 analysis determined that out-of-basin sources were, by 2005, collectively contributing nitrogen at a level 36% below the loading estimated in the TMDL. EPA's strategy in this permit and others in the Connecticut River watershed in Massachusetts and New Hampshire (the states for which EPA is the NPDES permitting authority) has been to ensure that the 2005 reductions below the 2000 TMDL baseline are at the very least maintained, while Connecticut, Massachusetts, New Hampshire, New York, Vermont, and EPA collaborate on various studies pursuant to the LIS Strategy. *See* FS at 21; *see also* Response B2. This strategy is consistent with the EIP referenced in the comment, which, as the commenter notes, embraces a "goal of essentially capping existing WWTP total nitrogen loads at or near existing levels until agreement is reached on final allocations and how they will be achieved." In sum, and contrary to the comment, the agencies have not set the benchmark at a level much greater than the facility can maintain based on the 2011-2016 data,[3] but rather have established a benchmark that is consistent with the 2000 TMDL, the 2004-2005 analysis, and the EIP.

[2] In the Fact Sheet, EPA used influent flow data for the period 2011-2016 to calculate the corrected baseline. FS at 21. It did not have influent flow data for the period 2004-2005. In responding to this comment, EPA sought and acquired influent flow data that show average influent flows in 2004-2005 at a comparable level (0.78 MGD).
[3] By comparison, using the 2011-2016 data in Fact Sheet Appendix A for both influent flow and nitrogen concentration yields a total nitrogen load of 89.4 lbs/day (that is, 0.75 MGD x 14.3 mg/L x 8.34).

Comment B4: Optimization Requirement
Finally, the draft permit requires the WWTP to optimize in order to achieve the greatest performance of nitrogen removal. However, the permittee has demonstrated greater nitrogen removal capabilities and as such, the WWTP is already poised to comply with this condition. In essence, the WWTP will be permitted to discharge more nitrogen than it is capable of removing upon issuance of this draft permit.

Response B4
EPA does not agree that the Spencer "WWTP will be permitted to discharge more nitrogen than it is capable of removing." *See* Response B3. Moreover, as the comment recognizes, and as EPA stated in the Fact Sheet, the permit requires the facility to evaluate alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen. FS at 21. The Fact Sheet continues:

> This evaluation is required to be completed and submitted to EPA and MassDEP within one year of the effective date of the permit, along with a description of past and ongoing optimization efforts. The permit also requires implementation of optimization methods, which will be evaluated based on the benchmark of 86.2 lbs/day to ensure that there is no increase in total nitrogen compared to the baseline average daily load. The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies, document the annual nitrogen discharge load from the facility to the wetland treatment units, and track trends relative to previous years. The draft permit includes a requirement for the facility to be operated in such a way that discharges of total nitrogen are minimized.

Id. EPA has not changed the optimization requirements in the Final Permit.

Furthermore, EPA's approach in this permitting action is consistent with the permitting strategy set forth in the EIP, to which the commenter suggests EPA should adhere. *See* Response B3. In addition to calling for caps on the out-of-basin upstream state WWTPs at or near existing total nitrogen loads, the EIP also called for permits to include a similar optimization requirement as EPA included in the Spencer WWTP. *See* EIP at 1.b ("Consistent with the 2000 TMDL [footnote omitted], EPA and the tributary states will implement a tributary state wastewater treatment plant (WWTP) permitting strategy with a goal of essentially capping existing WWTP total nitrogen loads at or near existing levels until agreement is reached on final allocations and how they will be achieved [footnote omitted].").

Comment B5: Upstream States' Nitrogen Contribution
A study of nitrogen loadings trends to LIS from New England states found that approximately 50% of the nitrogen load to LIS comes from areas north of Connecticut (Mullany and Schwarz, 2013). This study was based on 10 years (1999-2009) of data and compared computed nitrogen

loads from four gaging stations located along the Connecticut-Massachusetts border to the total nitrogen load computed from gages (and estimates) within Connecticut. As Connecticut continues to achieve greater nitrogen reductions at its WWTPs, the load from Massachusetts and other upstream states (New Hampshire and Vermont) consequently, becomes a greater portion of the load and warrants full attention. In addition, very little to no attenuation occurs in the Connecticut River (Smith et al. 2008) so this entire total nitrogen load from upper basin states is essentially transported directly to LIS.

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

We feel this permit is important for EPA to demonstrate its commitment to 'lead through example'. Following years of nitrogen monitoring and demonstration of the Spencer WWTP's performance (26.73 pounds/day in [Fact Sheet] Appendix A), EPA can now include an enforceable nitrogen limit in Section I.A.1. of the permit. The WWTP has already demonstrated that meeting such a limit is achievable, and as such, a performance-based nitrogen permit limit is warranted. We recognize that EPA and Massachusetts may implement other nitrogen reduction strategies in the future. Upon development of such other strategies, the permit may be modified as necessary. CT DEEP has successfully implemented a nitrogen trading program, as a well as limit for all small dischargers (<20 pound N/day). We would be happy to discuss our efforts with EPA.

Response B5

The nitrogen conditions in the permit are a reasonable means to implement the 2000 TMDL and control nitrogen discharges from the relatively small Spencer WWTP because they are consistent with the WLA for out-of-basin sources in the 2000 TMDL, which allocates loading for out-of-basin states by focusing on the aggregate loading totals rather than setting hard limits for each facility.[4] This approach recognizes that nitrogen loads are commingled in the Connecticut, Thames, and Housatonic Rivers before reaching Long Island Sound and that the aggregate load reduction is the most meaningful way to assess compliance with the TMDL.

[4] The aggregate WLA has been met and surpassed. The 2000 TMDL estimated the total nitrogen load from out-of-basin wastewater facilities to the Connecticut River at 21,672 lbs/day and set an aggregate WLA of a 25% reduction, or 16,254 lbs/day. FS at 21, Table 3. By 2004-2005, the total load for the River was estimated to be 13,836 lbs/day—a 36% reduction. *Id.* By comparison, the Final Permit sets a benchmark for the Spencer WWTP of 86.2 lbs/day—or 0.62% of the 2004-2005 baseline load for the Connecticut River.

In addition, as noted earlier, the reference to the facility's total nitrogen load as 26.73 lbs/day is incomplete, and the approach EPA has taken in this permit with respect to nitrogen is consistent with the EIP. See Responses B3 and B4.

Finally, as EPA explained in the Fact Sheet, *see* FS at 21-22; *see also* Response B2, EPA's permitting approach for the Spencer WWTP is further reasonable in light of the Long Island Sound Nitrogen Strategy, which includes the development of technical studies to determine appropriate thresholds for nitrogen in various portions of the Sound and the identification of areas where nitrogen watershed loading results in exceedances of thresholds. The Subtasks F & G Memorandum to which the comment refers are steps in the process to reaching these goals. EPA will use the technical information developed through the Long Island Sound Nitrogen Strategy to inform its future permitting activities for this and other WWTPs. If further reductions are identified as necessary for the Spencer WWTP, EPA will include a water quality-based limit in a future permit action.

See also Response F1.

C. COMMENTS SUBMITTED MARCH 19, 2018 BY JAMES P. VANDER SALM ON BEHALF OF THE QUABOAG QUACUMQUASIT LAKE ASSOCIATION

As you know, QQLA is a non-profit organization dedicated to the protection and restoration of water quality in Quaboag and Quacumquasit Ponds[1], which are downstream of the Facility. QQLA's membership consists of nearly 200 families who reside and recreate around these ponds. Since its founding in 1996, QQLA has worked diligently with its municipal and private partners throughout the Quaboag-Quacumquasit watershed to combat the pollution of the region's waters, and to advocate for water protection more broadly. It has directed and sponsored numerous educational and scientific initiatives designed to spread awareness and adoption of sound pollution prevention practices and technologies in the watershed, investing thousands of hours of its members' time as well as substantial amounts of money in the process. A longstanding concern of QQLA has been phosphorus pollution, which has degraded water quality, promoted the extensive growth of weeds and algae, and severely impaired the public's recreational and aesthetic enjoyment of Quaboag and Quacumquasit Ponds.

QQLA has a number of comments regarding the Draft Permit's proposed new effluent limits for phosphorus, as set forth below.

Comment C1: The Proposed New Phosphorus Limits Must Be Lower to Comply with the Facility's TMDL Wasteload Allocation.

As stated in the Draft Permit's Fact Sheet (at Part 5.1.8.3), the Facility's effluent limitations for total phosphorus must be low enough to comply with the Facility's TMDL wasteload allocation ("WLA"). See 40 CFR § I22.44(d)(I)(vii)(B). QQLA is pleased that the Agencies now recognize the need to use the Facility's design flow (1.08 MGD) rather than its average outfall flow (0.47 MGD) for purposes of calculating the effluent limitations necessary for such compliance. See Draft Permit, Part I.A.1. & n.6; Fact Sheet, Part 5.1.8.3. This is clearly necessary, as a high

percentage of the Facility's influent is passing through its unlined wetland beds into groundwater (and from there to Cranberry and Sevenmile Rivers[2]) rather than discharging at its outfall, thus rendering the outfall flow an invalid basis upon which to determine the Facility's wasteload. However, the new phosphorus limits proposed in the Draft Permit (0.1 mg/L for May-October, 0.2 mg/L for November-April) are not in fact consistent with the Facility's WLA.

The Facility's WLA is 0.79 lb/day for May-October-in metric terms, 0.36 kg/day, or 360,000 mg/day. To determine the per-liter concentration necessary to comply with this WLA, 360,000 mg must be divided by 4.09 million liters (that is, the metric equivalent of 1.08 million gallons, the Facility's assumed daily effluent flow in the Draft Permit). The result of this calculation is 0.09 mg/L, rather than the 0.1 mg/L effluent limit proposed in the Draft Permit. Meanwhile, the Facility's WLA for the November-April period is 1.19 lb/day (0.54 kg/day, or 540,000 mg/day). Dividing 540,000 mg by 4.09 million liters, one gets 0.13 mg/L. Thus, the Draft Permit's proposed effluent limit for the winter period, 0.2 mg/L, is over 50% greater than the Facility's WLA will allow.

In short, the Draft Permit's effluent limits for total phosphorus must be lowered. Pursuant to 40 CFR § I22.44(d)(I)(vii)(B), these limits must be no greater than 0.09 mg/L for the growing season (currently May-October) and no greater than 0.13 mg/L for the winter period (currently November-April).

[1] These comments will refer to Quaboag and Quacumquasit "Ponds" to be consistent with the Draft Permit's Fact Sheet. These waters are alternatively known as Quaboag and Quacumquasit "Lakes" and (respectively) "North Pond" and "South Pond."

[2]The Draft Permit refers to "Cranberry River," whereas the current permit refers to "Cranberry Brook." To be consistent with the Draft Permit, these comments will refer to "Cranberry River." phosphorus limits that divides the year into equal six-month periods.

Response C1

The thrust of the comment is that the concentration-based phosphorus limits in the permit are inconsistent with the Waste Load Allocation ("WLA") for the Spencer WWTP in the phosphorus TMDL for Quaboag and Quacumquasit Ponds. The comment overlooks, however, that the permit includes concentration-based and mass-based limits for phosphorus. The inclusion of both types of limits in the permit means that both limits apply at the same time. Moreover, the mass limits in the permit are based on the WLA in the phosphorus TMDL, meaning that the permitted phosphorus load from facility will be consistent with the WLA.

The mass load to the receiving water is the product of the flow (MGD), the concentration (mg/L), and a conversion factor of 8.34.

Mass load (lb/day) = Flow (MGD) * Concentration (mg/L) * 8.34

Thus, the comment is correct that when the influent flow is 1.08 MGD, the mass loading limit means that the average total phosphorus concentration must be 0.09 mg/L or lower

to meet the 0.79 lb/day loading limit. This fact conflicts with neither the WLA nor the summer total phosphorus limit of 0.1 mg/L, however, because the mass-based limit will also be applicable and because it is consistent with the WLA for the Spencer WWTP.

Conversely, at lower influent flows, such as 0.54 MGD (as occurred in August 2015), the loading limit of 0.79 lb/day could be met with an effluent concentration of 0.18 mg/L total phosphorus. However, this would violate the concentration limit of 0.1 mg/L. The concentration and mass limits will be in effect simultaneously and together ensure that neither the total phosphorus concentration nor mass load will lead to water quality impairments.

Comment C2: The Growing Season Phosphorus Limit Should Apply for Seven Months.
In the Draft Permit, as in the Facility's current permit, the growing season phosphorus limit and winter phosphorus limit apply for six months each-the former from May 1 to October 31, the latter from November 1 to April 30. This is an anomaly. QQLA has reviewed dozens of POTW NPDES permits in Massachusetts, and has not found another permit with seasonally adjusted phosphorus limits that divides the year into equal six-month periods. The vast majority of these permits, if not all of them, divide the year into seven-month and five-month periods—that is, with the growing season limit applying from April 1 to October 31, and the winter limit from November 1 to March 31. See, e.g., Barre (Permit# MA0103152); Belchertown(# MA0102148); Billerica(# MA0101711); Charlton(# MA0101141); Gardner(# MA0100994); Grafton(# MA0101311); Hopedale(# MA0102202); Medfield(# MA0100978); Medway/ Charles River Pollution Control District(# MA0102598); Milford(# MA0100579); Northbridge(# MA0100722); North Brookfield(# MA0101061); Southbridge(# MA0100901); Stockbridge(# MA0101087); Sturbridge(# MA0100421); Templeton(# MA0100340); Upton (# MA0100196); Ware(# MA0100889); Wayland(# MA0039853); Webster(# MA0100439); Westfield(# MA0101800).

QQLA requests that the Facility's permit be aligned with the norm, and that its growing season phosphorus limit be extended to seven months from April 1 through October 31. This will more accurately reflect the true growing season, which is becoming longer due to climate change impacts such as increased water temperature and accelerated ice-off. Additionally, applying the lower phosphorus limit in April will serve to better protect Quacumquasit Pond from phosphorus loading that occurs during spring backflows from Quaboag Pond.

Response C2
EPA has changed the warm weather phosphorus removal period to April through October. The reasons for this change include consistency with state guidance for assessing nutrient impairments and with similar permits in Massachusetts.

Because the total phosphorus limit was based on the QQ TMDL WLA, the Draft Permit used the same seasonal period as that document. To respond to the comment, EPA re-examined the QQ TMDL to determine if there was a compelling reason that it recommended May rather than April as the start of the warm weather phosphorus limits for the Spencer WWTP. The TMDL contains no specific reason for starting the

phosphorus summer season in May, but it does state that the annual average hydraulic retention time in Quaboag Pond is 12 days, and goes on to say, "[i]n cases of rapidly flushing (less than 14 days) lakes or impoundments downstream of point sources it may be appropriate to set seasonal limits on phosphorus inputs based on the growing season (May-October)." TMDL at 41.

EPA then consulted the 2018 Massachusetts Consolidated Assessment and Listing Methodology (CALM) Guidance Manual,[5] which describes how the Commonwealth assesses waters for impairments to assist it in making 303(d) listing determinations and, ultimately, in developing TMDLs. CALM Guidance Manual at 1; CWA § 303(d)(1)(C), (D); 33 USC § 1313(d)(1)(C), (D). The CALM Guidance Manual was intended to be used for developing TMDLs and defines the "summer growing season" as April 1 through October 31 for assessing nutrient enrichment. Thus, adjusting the seasonal limit to include April is consistent with the Commonwealth's current views on the period of the growing season for assessing nutrient enrichment and developing TMDLs.

In addition, as the commenter points out, the clear majority, though not all, of growing season phosphorus limits for POTWs in Massachusetts begin in April. In the case of the Spencer WWTP, the absolute difference between the 0.2 mg/L winter limit and the 0.1 mg/L summer limit for one month per year is relatively small. Nevertheless, in the interest of consistency with current Massachusetts' guidance for nutrient TMDL development and with seasonal phosphorus limits in most permits for POTWs in the State, the Agencies have changed the Spencer WWTP warm weather phosphorus limit period in the Final Permit to April through October.

Furthermore, while effluent limits must also be consistent with the assumptions and requirements of any available WLA, they need not be *identical* to the WLAs. *In re City of Moscow*, 10 E.A.D. 135, 148 (EPA Environmental Appeals Board, 2001). EPA concludes that adjusting the growing season limit to include April is consistent with the TMDL's assumption that a "growing season" WLA is appropriate for the Spencer WWTP. In any event, "TMDLs are by definition maximum limits; permit-specific limits [that] are more conservative than the TMDL maxima[] are not inconsistent with those maxima, or the WLA upon which they are based." *Id*.

Comment C3: The Timeline for Compliance with the Proposed New Phosphorus Limits is Unreasonably Long.

QQLA is alarmed by the Draft Permit's compliance timeline, which allows the Town six-plus years, until December 31, 2024, to comply with the new phosphorus limits. See Draft Permit, Part I.B.2. Particularly given the Agencies' recognition that the current limits fail to account for the full volume of water discharged from the Facility, and are thus insufficiently stringent to comport with the Facility's WLA—a situation that has existed now for 11 years—the Town should be given no more time than is necessary to comply with the new limits.

[5] Available at https://www.mass.gov/files/documents/2018/05/07/2018calm.pdf

It is important to note that the impact of the Facility's phosphorus pollution on Quaboag and Quacumquasit Ponds is cumulative. Each year is not a "fresh start." Rather, internal recycling of previously deposited phosphorus is a major contributor to the ponds' eutrophy. See 2006 TMDL Report, at 42-43. Thus, to the degree that the new phosphorus limits are delayed, there will be long-term impacts. More phosphorus will settle in the ponds' surficial sediments, causing higher internal phosphorus loading over time than would otherwise have occurred.

The Fact Sheet (at Part 5.1.8.3) is conspicuously vague in justifying the Draft Permit's lengthy timeline. It states that the Town has applied for financial assistance from the Clean Water State Revolving Fund, and that securing such funds is a "multi-year process" involving planning, design, and construction. It does not, however, offer any explanation as to why this process or any of its phases requires the amount of time allotted in the Draft Permit. Moreover, it does not explain how far along the Town already is in this process.[3] As for the Fact Sheet's second rationale for the lengthy timeline—that sewer fees in Spencer "could rise" from 0.89% to 2.50% of median household income—a clearer explanation should be provided. It is not clear whether and to what extent any financial assistance from the Clean Water State Revolving Fund would obviate the projected sewer fee increase. It is also not clear whether the projected sewer fee increase would be temporary or permanent—that is, whether it reflects one-time costs or ongoing costs necessary to maintain the upgraded Facility. To the degree that the Agencies are justifying their indulgent timeline on the basis of the Town's financial challenges, a more detailed and coherent explanation of these challenges should be provided.

The Agencies should not, in any event, accord the Town special treatment on the basis of financial hardship. The Town has received more than its share of special treatment already. Beside the fact that the current phosphorus limits effectively license the Facility to exceed its WLA, and beside the fact that the current permit has been continued for six years beyond its expiration date, the Facility's unpermitted discharge to groundwater from its wetland beds is in flagrant violation of law. First, it violates MassDEP's groundwater discharge regulations at 314 CMR 5.00 et seq. Second, it is increasingly clear that the discharge requires NPDES permit authorization, given that it migrates through groundwater to the Cranberry and Sevenmile Rivers. See Hawai 'i Wildlife Fund v. County of Maui, 881 F.3d 754, 762-765 (9th Cir. 2018) (wastewater treatment plant's discharge of effluent to groundwater required NPDES permit coverage because the effluent emerged from the ground in U.S. waters). In short, the Agencies should not countenance the status quo at the Facility for any longer than they must. The new permit should impose a rigorous schedule for Facility upgrades, one befitting a facility that is and has been violating the law. It is well past time for the Agencies to prioritize the interests of the environment and of downstream stakeholders such as QQLA, who have borne the cost of the Town's unlawful pollution for decades.

Specifically, QQLA proposes the following revised deadlines, which should provide the Town with ample time to accomplish the designated tasks:

QQLA requests that the deadline at Part I.B.2.c. for completion of design plans and specifications be moved forward from July 31, 2020 to December 31, 2019.

QQLA requests that the deadline at Part I.B.2.d. for starting construction of necessary upgrades be moved forward from May 1, 2021 to May 1, 2020.

QQLA requests that the deadline at Part I.B.2.e. for attaining compliance with final effluent limits be moved forward from December 31, 2024 to December 31, 2022.

[3] In an email dated October 28, 2016, EPA informed QQLA that to EPA's understanding, the Town had by that time begun planning Facility upgrades applying for Clean Water State Revolving Fund Assistance.

Response C3

Pursuant to EPA and MassDEP regulations, a compliance schedule for a water quality-based effluent limit ("WQBEL") in a NPDES permit must require compliance "as soon as possible." 40 CFR § 122.47(a)(1); 314 CMR 3.11(10). Among the factors the agencies generally consider in their discretion when determining the appropriate length of such a compliance schedule are whether modifications to the WWTP are needed to achieve the WQBEL, how long it will take to complete any such modifications, and the cost of the modifications. *See In re New England Plating Co.*, 9 E.A.D. 726, 739 (EPA Environmental Appeals Board, 2001); Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits (EPA May 10, 2007); Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development (EPA 1997); Interim Economic Guidance for Water Quality Standards (EPA 1995). The agencies' consideration of these factors is grounded in the EPA Environmental Appeals Board (EAB) caselaw pertaining to compliance schedules, as well as EPA guidance.

The commenter appears to propose that the agencies add another factor into this mix: a history of "special treatment" by the agencies of the Town, for reasons stated in the comment, that it believes would justify shortening the compliance schedule. In the agencies' view, decisions regarding schedule length should be dictated by objective factors relating to planning, design, construction, and operations, and not driven by subjective or punitive considerations. This is especially true where the commenter's allegations of preferential treatment are not substantiated.[6] Moreover, even if a history of "special treatment" were actually at issue in this proceeding, it is unclear how that would bear on or inform the relevant regulatory standard of "as soon as possible." The agencies' consideration of more conventional factors traditionally associated with the process of upgrading a treatment plant is a clearer approach more rationally related to evenhanded implementation of 40 CFR § 122.47(a)(1) and 314 CMR 3.11(10).

While the agencies acknowledge the delay in re-issuing the Final Permit, the length of the schedule for compliance with the total phosphorus limits is appropriate in light of the time needed for the Town to complete a major WWTP upgrade to meet the more stringent limits, including developing a Comprehensive Wastewater Management Plan

[6] We note that the 2007 Permit included seasonal phosphorus limits of 0.2 and 0.3 mg/L, which were among the strictest in Massachusetts at the time of issuance.

("CWMP"), obtaining funding, designing the upgrades, obtaining the necessary construction permitting, bidding the construction, completing the construction, the cost of the upgrades, and, once the upgrades are in place, fine-tuning the system to learn how to operate it best to meet the new phosphorus limits. Moreover, detailed planning and design work for a major upgrade to achieve specific pollutant limits can only proceed so far before the issuance of the permit that sets the pollutants to be controlled and the specific levels of control that will be necessary.[7] In light of these considerations and others discussed below, the agencies decline the invitation to shorten the schedule for the reasons offered in the comment and have determined that the schedule requires compliance with the water quality-based phosphorus limits in the permit "as soon as possible," in accordance with EPA and MassDEP regulations. *See* 40 CFR § 122.47(a)(1); 314 CMR 3.11(10).

Massachusetts regulations require that POTW upgrades go through extensive planning, public review, and design approval. 310 CMR 44.00. With major POTW upgrades such as the one planned for the Spencer WWTP, this is usually accomplished through the development of a CWMP, which is a process whereby current and future wastewater needs are evaluated, wastewater management alternatives are developed that will meet these needs, and a final plan is chosen through careful comparison and evaluation of the alternatives. Massachusetts uses CWMPs to ensure that WWTPs are environmentally sound, cost effective, and account for future growth or climate conditions. Moreover, financial assistance from the Clean Water State Revolving Fund prioritizes projects that are needed for NPDES permit compliance, meaning that projects not required for an NPDES permit are less likely to receive funding. In Massachusetts, a CWMP is also generally required for a project to qualify for an SRF loan at zero percent interest. *See* M.G.L. c. 29C, § 6(d); 310 CMR 44.07.

In 2017, the Town of Spencer was selected to receive an SRF loan to fund the development of a CWMP. The Town and its consultant, Wright-Pierce, submitted Phase I and Phase II of the CWMP to MassDEP in May 2018 and October 2018, respectively. Phase III of the CWMP will consist of a cost evaluation, environmental impact analysis of feasible alternatives, and a recommended plan of action. Once the CWMP is approved by MassDEP and finalized, the Town can begin working on a conceptual design for the upgrades.

While the comment asserts with little explanation that a shorter schedule would provide "ample" time for the facility to comply with the phosphorus limits, the agencies conclude that the scope of the WWTP upgrades planned by the Town justifies the current length of the schedule. The Final Permit reasonably provides one year for the Town to submit a final CWMP to MassDEP and, once the CWMP is approved, to appropriate funds, select

[7] This may be so for many reasons, not least of which include often competing priorities for limited municipal resources, which may weigh against the irretrievable commitment of financial resources to a project whose legal requirements have not yet been finalized. In addition, selecting an appropriate water pollution control technology may in many cases depend upon the pollutants to be controlled and the levels of control required.

a consultant, and complete the conceptual design. Final Permit at Part I.B.2.b. The schedule provides an additional 19 months (by July 31, 2021) for the Town to complete design plans and specifications for the necessary upgrades and to obtain all other permits required to construct the upgrades. *Id.* at Part I.B.2.c. This is a reasonable amount of time because the upgrades to meet the total phosphorus limits also include upgrades to other parts of the WWTP and sewer system that the Town has identified through comprehensive planning. The preliminary list of potential upgrades includes:

- Extensive work on the Solids Handling Building;
- Repurposing 2 existing rectangular clarifiers for septage receiving complete with receiving, fine screening dewatering/compaction, septage pumping and waste sludge pumping;
- Control Building electrical, lighting, mechanical and facility improvements;
- Control Building pump room pumping equipment and piping improvements;
- Aeration Basins structural and process (aeration piping modification, anoxic zone, mixing and recycle for total phosphorus and total nitrogen removal) modifications;
- Removal/replacement of Influent Screw Pumps structure with new Influent Wet/Dry Well Pump Station with fine screen headworks, grit removal and chemical addition;
- Chemical Manhole chemical addition and piping improvements;
- Rapid Mix/Splitter Box mixing improvements;
- Clarification improvements by adding a second 60' +/- diameter covered final clarifier;
- Construction of tertiary treatment for P, TN, aluminum and copper removal;
- Relocation of the effluent flow meter & Ultra Violet (UV) Chamber system & UV Building from Cranberry Brook to the end of Tertiary Treatment;
- Relocation of the effluent outfall from Cranberry Brook to Sevenmile River;
- Construction of new outfall structure2 into the Sevenmile River; and
- Abandon or repurpose wetland bed area, potentially for renewable energy solar array project.

In addition, the Final Permit provides less than a year for the Town to complete the bidding for the construction of the upgrades, select a contractor, and start the actual construction. Final Permit at Part I.B.2.d. The schedule provides only two-and-a-half years for the Town to complete construction and learn how to operate the system most effectively to achieve the necessary phosphorus reductions. This period is appropriate because the Town will be constructing an entirely new tertiary treatment system that will require new permanent structures on the site. Moreover, the Town has indicated that the upgrades may include removing the wetland beds, which would affect the overall construction time. Furthermore, in the agencies' experience, the fine-tuning period for nutrient removal upgrades often takes many months of running the system to arrive at

operating procedures that reliably meet permit limits. The agencies are also aware of the uncertainty inherent in estimating the time required for planning, financing, designing, and completing significant upgrades to a WWTP.

EPA has also examined updated affordability information and estimates the average household cost of the phosphorus upgrades to result in sewer rates at around 1.5% of median household income (MHI) if the Town receives an SRF loan at zero percent interest. [8] *See* Affordability Memo dated February 19, 2019. If the Town does not receive a zero percent interest loan, the average household cost would be higher. EPA guidance suggests that, if preliminary screening indicates an impact between 1.0 and 2.0% of MHI, a community could incur a mid-range economic impact. *See id.* The schedule provided in the Final Permit is consistent with that recommended in EPA Guidance for such an economic impact. *Id.*

The comment recognizes that a compliance schedule is necessary and appropriate but asserts that it should be shortened by two years for several reasons, including that each year of delay extends the long-term impacts of internal recycling of phosphorus and that alleged violations justify a shorter schedule. EPA is aware of the internal phosphorus recycling that occurs in ponds and impoundments downstream from POTWs. It is because of this recycling that recent permits for POTWs with downstream impoundments include stringent, year-round phosphorus limits, rather than seasonal limits. It is also because of internal recycling that EPA no longer distinguishes between particulate and dissolved forms of phosphorus in POTW discharges. *See* Response D1. Accordingly, the permit includes year-round limits and does not distinguish between forms of phosphorus.

Furthermore, although the Spencer WWTP was historically "a major source of nutrients" to both ponds—making up an estimated 45% of the load to Quaboag Pond in the 1980s—by the time of the development of the QQ TMDL, its contribution was estimated to have been cut significantly. *See* QQ TMDL at 15, 17. According to the TMDL, other sources currently account for most of the total phosphorus to the ponds. *Id.* at 15, 17; *see also id.* at 42 (noting that "the plant contributes a minor portion of the nutrient load to either pond during the summer"). While the Spencer WWTP's contribution of total phosphorus to the receiving waters is nonetheless significant, these considerations—including that the plant's relative contribution is low, that it will still be subject to year-round low interim limits during the period of the compliance schedule, *see* Final Permit at Part I.b.2.a, that a major upgrade is necessary to meet the final limits, and the affordability of the upgrade—factor into the agencies' decision not to shorten the compliance schedule.

While the commenter posits that the agencies should truncate the schedule because of the permittee's use of the wetland beds, we conclude that the considerations discussed above counsel against shortening the schedule by two years. Completing the upgrade will still

[8] The figure calculated here is slightly different from that presented in the Fact Sheet because of updates to several variables, including the capital cost of the project and the Census estimate of median household income. Johnson, Updated Affordability Memo, February 19, 2019.

require finalizing the CWMP, financing the project, developing conceptual and final designs, bidding, additional permitting, construction, and generally some period of fine-tuning the system—all of which impact the time needed to comply with the new permit limits. *See* 40 CFR § 122.47(a) (providing that a schedule "shall require compliance as soon as possible"). Furthermore, the practical difference between the two schedules is that the commenter's schedule would have the plant meet summer and winter limits of 0.1 mg/L and 0.2 mg/L, respectively, in 2023 and 2024, whereas the compliance schedule in the permit will require the facility to meet already fairly stringent summer and winter limits of 0.2 mg/L and 0.3 mg/L, respectively, during those two years and then the lower limits thereafter. Finally, uncertainties regarding affordability remain, but as noted above, the upgrades could necessitate an increase in sewer fees to 1.5% of MHI.

For all these reasons, the agencies have decided not to shorten the schedule by two years to require Spencer to comply with its phosphorus limits by 12/31/2022.

Comment C4: The Phosphorus Timeline Should Be More Specific.
The Draft Permit's compliance timeline for the new phosphorus limits is ambiguous in several respects. It is critical that the timeline be as precise as possible to avoid any confusion as to what the Town must do by each deadline. QQLA therefore proposes the following amendments, which it assumes reflect the unstated intention of the Agencies:

- Part I.B.2.b. now states that the Town shall "complete a conceptual design to meet the total phosphorus limit" by December 31, 2018. QQLA requests that this language be amended to "complete a 25% conceptual design to meet the total phosphorus limit."

- Part I.B.2.c. now states that the Town shall "[c]omplete design plans and specifications for necessary upgrades" no later than July 31, 2020. QQLA requests that this language be amended to "[c]omplete design plans and specifications for necessary upgrades and obtain all permits required to perform such upgrades."

- Part I.B.2.e. now states that the Town shall "[a]ttain compliance with the final effluent limits for total phosphorus" no later than December 31, 2024. QQLA requests that this language be amended to "[c]omplete construction of necessary upgrades, including removal of the constructed wetlands[5], and attain compliance with the final effluent limits for total phosphorus."

[5] The Fact Sheet (at Part 5.1.8.3) states, "It is understood that [upgrades to the Facility] will include removal of the constructed wetlands, and once the upgrades are complete, all effluent flow will be through the effluent pipe." QQLA assumes that the absence of an explicit requirement in the Draft Permit that the Town remove the constructed wetlands is an oversight.

Response C4:
EPA has used the milestones in the Draft Permit in other permits actions and believes that they are sufficiently precise.

EPA has also not added the language requiring removal of the constructed wetlands in Part I.B.2.b.e. Although EPA has determined that more stringent phosphorus limits are necessary and understands the upgrades will include removal of the wetland beds, EPA does not generally prescribe the means a facility must employ to meet its permit limits. Moreover, the comment does not explain the need for the requested language. The permit requires compliance with the phosphorus limits (with or without the wetland beds). EPA sets water quality-based limits without regard to the technology needed to achieve them. *See* CWA § 301(b)(1)(C); *NRDC v. EPA*, 804 F.3d 149, 157 (2nd Cir. 2015); *NRDC v. EPA*, 859 F.2d 156, 208 (DC Cir. 1988).

Comment C5: The Phosphorus Timeline Should Require Both a Detailed Annual Progress Report and an Annual Public Presentation Regarding the Town's Progress.

Part I.B.2.f. of the Draft Permit requires that the Town "submit reports to EPA and MassDEP no later than December 31 of each year summarizing progress for that calendar year." QQLA believes that this provision is important but inadequate. The permit should include provisions ensuring that the Agencies and the public are regularly apprised in detail (rather than in summary) concerning the Town's progress. Absent such transparency, and absent close scrutiny from both the Agencies and stakeholders such as QQLA, the Town is likely to fall behind on its obligations. QQLA therefore proposes the following:

- An amendment to Part I.B.2.f., such that it provides, "Until the limit is achieved, the Town shall submit reports ("Annual Report") to EPA and MassDEP no later than December 31 of each year detailing its progress for that calendar year, and detailing its plans for the subsequent calendar year. The Annual Report shall include, without limitation, a registered professional engineer's detailed description of all planning, design, and construction activities performed or scheduled to be performed during the past or subsequent calendar year. Dates during which such activities have been performed, or are scheduled to be performed, shall be specified. Any problems or delays encountered or anticipated in the performance of such activities shall be explained in detail. The Annual Report shall be made available to the public through the Town's website simultaneously with the submission of the report to EPA and MassDEP."

- The addition of a paragraph to Part 1.B.2. that provides, "The Annual Report described in Part I.B.2.f. shall specify a time and place for a live public presentation concerning the report. The date of the presentation shall be between February 1 and February 15 of the year following the year in which the Annual Report is required to be submitted to EPA and MassDEP. The presentation shall take place after business hours at the Spencer Public Library or another venue in the Town that is open to the public. The author(s) of the Annual Report, the Spencer Board of Sewer Commissioners, and the Superintendent of the Facility shall be present. The author(s) of the Annual Report shall describe in detail its contents, and shall answer any question from any member of the public, whether or not a resident of the Town, regarding those contents."

Response C5:
NPDES regulations do not require permittees to engage in community outreach and education to the extent requested. However, EPA has changed the Final Permit to require the following details in the Compliance Schedule Annual Report:

- Describe the activities undertaken during the calendar year directed at achieving compliance with the final total phosphorus limit;
- Identify all plans, reports, and other deliverables related to the compliance schedule completed and submitted during the calendar year;
- Describe the expected activities to be taken during the next calendar year to achieve compliance with the total phosphorus limit;
- Identify any anticipated or potential areas of noncompliance with this Compliance Schedule;
- Describe the Town's plans with respect to the wetland beds. The report shall describe whether the Town plans to abandon, line, deposit material into, or build over the wetland beds. The report shall describe whether the town plans to cease directing wastewater flow to the wetland beds and if so, the timeline for ceasing the flow of wastewater to the wetland beds.
- Post the Compliance Schedule Annual Report on the Town website simultaneously with the submission of the report to EPA and MassDEP.

If members of the public wish to discuss the Compliance Schedule Annual Report or other compliance matters with the Town, a suitable venue may be the monthly public meetings of the Spencer Board of Sewer Commissioners. The meetings are held on the second Wednesday of every month at 5:00 pm at the Town of Spencer Utilities and Facilities Office at 3 Old Meadow Road, Spencer, Massachusetts.

Comment C6: The Agencies Should Appoint a Third-Party Reviewer of the Town's Progress.
To ensure that the Facility's planned upgrades are in fact adequate to satisfy the new phosphorus limits, and to ensure that these plans are executed faithfully, the Agencies should appoint a third-party engineering firm to review the Town's progress. Specifically, QQLA proposes the addition of the following paragraph to Part 1.B.2.:

"The Agencies shall appoint a third-party engineering firm ("Reviewing Engineer") to review the Town's progress in complying with Part 1.B.2., at the Town's expense. The Reviewing Engineer shall review each Annual Report submitted by the Town pursuant to Part I.B.2.f., and shall inspect the Facility once each January in connection with such review. The Reviewing Engineer shall present a written opinion ("Third-Party Review") to the Agencies and the Town by January 31 of each year, which shall assess the Town's progress in complying with the requirements of Part 1.B.2. The Third-Party Review shall be made available to the public through the Town's

website within 24 hours of its receipt by the Town. Depending upon the phase of design or construction that coincides with the Third-Party Review, the Third-Party Review shall include an assessment of the fitness of any conceptual or complete designs to achieve the permit's final effluent limits for phosphorus, and/or an assessment of the Town's progress in executing such designs."

Response C6:

It is not clear from the comment the specific purpose that would be served by requiring independent review and interpretation of the Compliance Schedule Annual Reports. The comment presumes such a requirement is necessary to "ensure that the Facility's planned upgrades are in fact adequate to satisfy the new phosphorus limits, and to ensure that these plans are executed faithfully," but the comment offers no explanation or support for these assumptions. It is not clear to EPA that the significant additional expense of such a requirement is reasonable or warranted in this case.

First, the Region is not aware of any other NPDES permit for a POTW in Massachusetts that includes such a condition. Second, it is not the Region's practice to prescribe the specific upgrades a facility uses to satisfy new permit limits or to second-guess those that it has chosen, as explained in the Response C4. *See* CWA § 301(b)(1)(C); *NRDC v. EPA*, 804 F.3d 149, 157 (2nd Cir. 2015); *NRDC v. EPA*, 859 F.2d 156, 208 (DC Cir. 1988). Rather, the Region establishes a reasonable schedule that sets the date for compliance with Final Permit limits, including, where appropriate, interim requirements and dates for their achievement; the permittee determines the means to achieve final limits within the specified timeframes, given the specifics of its circumstances. Third, Spencer has indicated that it intends to upgrade the facility to meet the phosphorus limits in the Final Permit, and it has taken steps to accomplish that, including applying to the Clean Water State Revolving Fund for assistance to finance the upgrades. *See* FS at 25. The Town is also reportedly close to submitting its final Comprehensive Wastewater Management Plan to MassDEP—a required step in securing funds from the CWSRF. *See* Response C3. Finally, other incentives exist to encourage the permittee to design and implement upgrades sufficient to comply with the new limits within the time allotted in the schedule. For instance, noncompliance with permit limits could subject the facility to enforcement action, as noted below. *See* Response C7. For all these reasons, EPA sees no basis to justify imposing the expense of a third-party reviewer requirement, and the comment offers none.

In addition, information and reports submitted by the permittee to EPA related to the phosphorus upgrades will generally be available to the public. The Final Permit currently requires the permittees to provide EPA and MassDEP with discharge monitoring reports ("DMRs") and other mandatory reports (including Compliance Schedule Annual Reports and Toxicity Test Results) on a timely basis. Data submitted to NetDMR are automatically incorporated into EPA's Enforcement and Compliance History Online ("ECHO") website, which highlights violations for viewing. Further, in the instance of

certain violations defined in Part II of the permits, the permittees are required to notify EPA within specified timeframes for certain conditions.

EPA and MassDEP evaluate compliance through inspections of the facility and review of the submitted monitoring data and other reports and routinely coordinate compliance and enforcement activities. Additionally, agency staff field inquiries from the public regarding compliance issues, and any person may report suspected environmental violations to EPA and to MassDEP.

Comment C7: There Should Be Specified Consequences for Failing to Comply with the Phosphorus Timeline.

Absent a credible and substantial threat of adverse consequences if it misses its deadlines, the Town will have little incentive to adhere to the Part 1.B.2. timeline. QQLA recognizes that the Agencies may not wish to commit prospectively to imposing certain consequences for permit violations. However, specifying potential consequences will serve a valuable purpose in underscoring the Agencies' enforcement resolve. The Town should be put on clear notice that the Agencies are contemplating enforcement of the Part 1.B.2. timeline from the start of this process. QQLA therefore requests the addition of the following paragraph to Part 1.B.2.:

"In the event that the Town violates this permit by failing to meet any deadline or take any action required by Part 1.B.2., EPA and/or MassDEP intend to take prompt enforcement action. Enforcement action may include, without limitation, the imposition of financial penalties for each day that a violation persists, a freeze on further connections to the Town's sewer system, and a prohibition on the Facility's receipt of transported septage or other waste from persons or entities not connected to the sewer system."

Response C7:

Failure to adhere to a final deadline in a compliance schedule by violating Final Permit limits is a permit violation enforceable by the agencies and by citizen suit, depending on the circumstances. In addition, NPDES permittees are subject to the duty to comply:

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

40 CFR § 122.41(a). Further, the Act provides for monetary and criminal penalties in the event of non-compliance. *See, e.g.*, CWA § 309; 40 CFR § 122.41(a)(2), (3). Thus, EPA disagrees with the comment's premise that the Town "will have little incentive to adhere" to the phosphorus compliance schedule in the permit. No changes have been made to the Final Permit because of this comment.

D. COMMENTS SUBMITTED MARCH 27, 2018 BY CHICOPEE 4RIVERS WATERSHED COUNCIL

The Chicopee 4Rivers watershed Council, C4R, a river stewardship group serving the rivers and river users of the entire Chicopee River Watershed, (the Quaboag is a major tributary) is pleased to provide our comments concerning the Spencer WWTP draft permit. We have reviewed the draft permit as well as comments of other groups concerned with water quality in the Quaboag River system and feel the draft is an improvement over the past, but more needs to be done to improve water quality as impacted the Spencer WWTP discharge. C4R encourages river stewardship and exploration and we are launching a "Blue Trail" on the waters of the Quaboag River, beginning in E Brookfield (possibly extending up to Spencer), all the way to Warren. Prime water quality is an important component to a healthy river system as well as for healthy recreation. The health of Quaboag Pond and beyond is directly impacted by what flows into it, thus a strong update and timely implementation of the new permit for the Spencer WWTP is needed.

Our main points of concern are:

Comment D1: Nutrient removal optimization:
Phosphorous is a leading nutrient pollutant that can affect a river's health. Quaboag Pond has seen algal blooms in recent years. Therefore, C4R recommends that the phosphorous limit be lowered in the draft permit. Our review of the draft, literature, and comments brings us to support the points made by the QQLA to set the limit to 0.09 mg/l in the growing season, and 0.13 mg/l in the off season (based on design flow). Meeting the noted TMDL is vital to river health. Additionally, limiting orthophosphorus in the winter is recommended.

Response D1
Please see Response C1, which addresses the phosphorus limits in the permit and consistency with the TMDL Waste Load Allocations.

EPA does not agree that a winter orthophosphate limit is necessary. In the early 2000s, it was EPA's understanding that dissolved phosphorus would pass downstream in winter, meaning that winter phosphorus limits should target the particulate form. However, a 2008 study of the total phosphorus in sediments in the Assabet River indicated that winter phosphorus loadings do accumulate in sediments, and that reductions in wintertime total phosphorus loading contribute significantly to the reduction in sediment phosphorus flux, even when the proportion of non-particulate orthophosphate is relatively high. Given that both dissolved and particulate phosphorus contribute to water quality impairments, EPA has determined that total phosphorus is the appropriate focus and sees insufficient reason to require monitoring or include a permit limit for orthophosphate in the wintertime.

Comment D2: Seasonal Limits
Season: C4R concurs that the growing season should be April 1 to October 31 to at least match the regional norm. Climate change influences further support the need for this schedule.

Response D2
Please see Response C2.

Comment D3: Schedule
Implementation: C4R recommends that actions to implement the improved nutrient removal and water quality enhancements be done as promptly as possible. The 2024 deadline seems unnecessarily far off. We feel it is quite possible and reasonable to set a deadline much earlier by at least 2 years. Putting off improvements, puts off protecting and restoring healthy water quality and threatens river users health. Once the upgrade is in place, a robust regimen of area stream and effluent monitoring is recommended to ensure compliance.

Certainly the new permit should be accompanied by a clear and monitored timetable for implementation. As with any project that must achieve its goal, there is a need to measure performance regularly and on a defined schedule: this assures positive and timely results. The delays and past track record here seem to urge the need for monitoring and firm deadlines. The goal here is a healthy river, healthy waters, and consistent public health.

C4R sincerely appreciates your considerations on these comments. We offer them to encourage actions to promote benefits for all in the region, benefits for the environment, but also the wider communities' economic health. Thank you.

Response D3
EPA agrees with the commenter that effluent monitoring is required to ensure compliance with the effluent limits in the permit and has included these in the permit; *see* Part I.A of the Permit). The effluent limits in the permit, and associated monitoring requirements, are intended to ensure that the discharge does not cause or contribute to a violation of WQS and to be consistent with facility waste load allocation proscribed in the TMDL. "Area stream" monitoring, while useful to assess the condition of waters in the area, is not necessary to measure whether effluent limits are being met.

The permit includes a compliance schedule with defined dates for completing implementation milestones and a requirement to submit annual progress reports. Like the effluent limits, this is an enforceable part of the permit.

Please also see Response C3.

E. COMMENTS SUBMITTED MARCH 28, 2019 BY THE CONNECTICUT RIVER CONSERVANCY

I am submitting comments on the draft National Pollutant Discharge Elimination System (NPDES) permit for the Spencer Wastewater Treatment Plant (WWTP) on behalf of the Connecticut River Conservancy, formerly the Connecticut River Watershed Council. The facility discharges to the Cranberry River, which discharges to the Sevenmile River, which flows to Quaboag Pond, then to the Quaboag River, to the Chicopee River, and then the Connecticut River. Quaboag Pond is also connected to Quacumquasit Pond. Cranberry River and Sevenmile

River are not known to be water-quality impaired, but there is a Phosphorus TMDL for Quaboag and Quacumquasit Ponds (MassDEP report MA36130-2005-1, CN 216.1) dated May 2006. All permits in the Connecticut River watershed fall under the Long Island Sound Nitrogen TMDL. We are interested in improving water quality in the Connecticut River and its tributaries such that they can all one day meet Class B water quality standards.

CRC attended the public meeting and hearing held at the public library in Spencer on Monday, March 26, 2018. At the time, we asked several questions but did not present comments. We obtained a copy of the Potential Plant Upgrade Process Flow Diagram at the meeting. Our comments are below.

Comment E1: 7Q10 and Dilution Factor

The 7Q10 and dilution ratio may not be conservative enough. EPA has calculated the 7Q10 (lowest observed mean river flow for 7 consecutive days, recorded over a 10-year recurrence interval) for the ungauged Cranberry River on extrapolated data from the most recent 30 years at a station in the nearby Sevenmile River in Spencer. EPA has considered topography, drainage area, land uses, proximity, and nearby water supply wells, and considers the drainage areas qualitatively similar enough. CRC consulted with MassDEP's interactive online map built as part of the Sustainable Water Management Initiative (SWMI). According to this tool (linked at *https://www.mass.gov/guides/sustainable-water-management-swmi-technical-resources*), the Cranberry River watershed is in the pink groundwater category (category 4) and is >25-50% flow impacted. The Sevenmile River watershed upstream of the Cranberry River is yellow (category 3), and is >10-25% flow impacted. Cranberry River sub-basin is coded as a "yes" for >25 groundwater depletion, whereas Sevenmile River is not. For fluvial fish, the Cranberry River basin is the highest category of alteration, 5, and is >65% impacted. Sevenmile River is category 4, or >25-65% altered.

Using the Sevenmile River flows as a surrogate for the Cranberry River may not be conservative enough, and CRC recommends that some kind of calculation be developed to account for the Cranberry River's higher level of impact from groundwater withdrawals. This would potentially then impact permit limits.

Response E1

The comment seeks a more complex 7Q10 calculation without proposing any particular method. EPA used the best available streamflow data to calculate the 7Q10 at the Spencer WWTP outfall, which is an ungaged site. FS at 13. While it is preferable to use a USGS gaging station that is on the same river as the ungaged site, in this case there are no USGS gaging stations on Cranberry River. Rather, the draft permit uses a USGS gaging station on a nearby river in the same watershed. The USGS recommends using this method if the drainage area for the ungaged site is between 0.3 and 1.5 times the drainage area of the USGS gaging station.[9] In the case of the draft Spencer WWTP

[9] Ries, Kernell G. III and Paul J. Friesz, 2000. Methods for Estimating Low-Flow Statistics for Massachusetts Streams. USGS. Available online at https://pubs.er.usgs.gov/publication/wri004135.

permit, the drainage area ratio between the outfall and USGS 01175670 (Sevenmile River at Spencer, MA) is 0.74. *See* FS at 13-14.

EPA also notes that a lower dilution factor would have no impact on most of the limits in the permit and only a limited impact on two permit limits. More specifically, the dilution factor used in the Draft Permit is already fairly low (1.07) and cannot be lower than 1.00.[10] A dilution factor of 1.00, if applied to the Spencer WWTP, would change the wintertime ammonia limit from 6.3 mg/L to 5.9 mg/L and the Whole Effluent Toxicity chronic limit from 93% effluent to 100% effluent (i.e. a sample composed of 100% effluent must not cause chronic toxicity to test organisms over a 7-day period). The other effluent limits would not be affected because they are based on TMDLs (nitrogen and phosphorus), the 1981 Water Quality Management Plan (dissolved oxygen, warm weather limits for BOD_5, TSS, and ammonia), secondary treatment standards (cold weather BOD_5 and TSS), or do not change based on dilution in general (pH, E. coli) or on this change in dilution in particular (copper). *See* FS at 27. The results of the reasonable potential analyses for aluminum, cadmium, lead, nickel, and zinc would likewise be unchanged. *See* FS at 27-28.

To summarize, the data to revise the 7Q10 analysis are not available, and the limits would not change appreciably with a lower dilution factor. Furthermore, the Spencer WWTP anticipates moving the outfall to the Sevenmile River, further limiting the value of a more detailed hydrologic investigation. For these reasons, EPA has not changed the 7Q10 calculation used in the Draft Permit.

Comment E2: Additional Sampling

Additional sampling should be required to ensure permit limits are met. Given the high volume of seepage through the wetland beds (~50% or more influent lost), additional sampling should be required to ensure that permit limits are met for this unusual facility. The effluent should be sampled as is required in the current and proposed permit. But sampling should also be required upstream of the facility on Cranberry Brook, and just upstream of the confluence with the Sevenmile River, ideally on a weekly basis. Should the potential facility upgrade be constructed, this requirement could be eliminated.

Response E2

As part of the permit reissuance, EPA collected phosphorus data in 2015, upstream and downstream of the Spencer WWTP during low flow conditions. The study was limited in nature but found that while the Spencer WWTP did contribute phosphorus to the Cranberry River and Sevenmile River, neither the phosphorus concentrations nor visual observations indicated an impairment to either river. The results of this study are included as Appendix A to this RTC.

[10] The lowest possible dilution factor is 1.00, in which a discharge has no dilution in the receiving water.

Furthermore, the Final Permit (like the Draft Permit) already requires sampling upstream of the facility on the Cranberry River. The facility collects data upstream of the facility on a quarterly basis as part of Whole Effluent Toxicity (WET) Testing. The results of this testing are included in the quarterly WET test reports submitted to EPA and MassDEP. The reports are available on request from either agency.

Comment E3: Total Nitrogen (TN)

The Draft Permit section I.B.1. requires that the permittee complete an evaluation of alternative methods of operating the existing wastewater permit to optimize nitrogen removal, setting the baseline mass loading for the facility at 86.2 lbs/day. The Fact Sheet on page 21 explains that the Long Island Sound Nitrogen TMDL baseline analysis for the Spencer WWTP was 63.5 lbs/day based on an average flow that did not take into account effluent flow lost through the wetland beds. Because of this error, the plant is getting a 36% increase in their loading limit! CRC does not understand why loading limits for TN have been based on current flows and not design flows, as is done for TSS and BOD.

Response E4

To the extent the comment suggests that the 2000 TMDL for Dissolved Oxygen in Long Island Sound includes a 63.5 lbs/day baseline mass loading for the Spencer WWTP, it is incorrect. In addition, the comment asserts that the facility "is getting a 36% increase in their loading limit." While the 2000 TMDL includes an estimate of the then-total nitrogen load attributable to out-of-basin sources—which includes the Spencer WWTP, among many others—and sets an aggregate WLA for those sources of a 25% reduction, it does not include a baseline mass loading specific to the Spencer WWTP.[11] As explained in the Fact Sheet, a baseline loading analysis for out-of-basin sources was conducted several years after EPA's approval of the 2000 TMDL (using 2004-2005 plant-specific data). FS at 20-21. That later analysis estimated the 2004-2005 load from the Spencer WWTP and is the derivation of the 63.5 lbs/day figure. *Id.* As EPA has also explained, the later analysis was based solely on the volume of effluent discharged via the plant's outfall, as determined from DMR data. *Id.* In other words, that analysis failed to account for the nitrogen loading likely reaching the Cranberry River via the wetland beds, meaning that the 2004-2005 baseline estimate for the Spencer WWTP was not an accurate assessment of the plant's nitrogen contribution to the watershed. *See also* Response B3.

The comment appears to suggest, confusingly, that the nitrogen baseline load for the WWTP should be based on design flow, which for the Spencer WWTP is 1.08 MGD. FS at 11. A nitrogen load based on design flow, however, would be much higher, ranging

[11] It is not clear from the TMDL document, but Connecticut DEEP, in its comments on the Draft Permit, claims that, for the TMDL, it estimated the total mass loading from upstream POTWs on the Connecticut River by multiplying each POTW's design flow by an estimated nitrogen concentration of 15 mg/L and then adding all the results together. *See* Comment B2. If that is true, then any baseline estimate for the Spencer WWTP for the 2000 TMDL would have been 135.1 lbs/day.

from 122.5 lbs/day to 128.9 lbs/ day, depending on whether the calculation uses nitrogen concentration effluent data for 2004-2005 or 2011-2016, respectively.[12]

Comment E4: Nitrogen Optimization
CRC recommends that the permit be revised to include two optimization requirements: 1) an optimization study for reducing N in the interim prior to plant upgrade, and 2) N reduction options for the potential plant upgrade presented at the public meeting. There should be two separate due dates established for these efforts. CRC requests that EPA establish annual load limit for TN that is enforceable. CRC supports the proposed ammonia-nitrogen limits, which unlike the TN limit, are appropriately based on design flow.

Response E4
As required by Part I.B.1 of the permit, the Town of Spencer will submit Nitrogen Optimization Reports for its current WWTP until the upgrade goes online.

The information requested by the commenter describing nitrogen optimization for the WWTP upgrade will be included in the Comprehensive Wastewater Management Plan (CWMP). This report, required by the Commonwealth of Massachusetts for major WWTP upgrades, will include an alternatives analysis of treatment processes to comply with nitrogen limits that are expected in future permit reissuances.

Regarding enforceable nitrogen limits, please see Responses B2 and B5.

Comment E5: Total phosphorus (TP)
CRC again does not understand why the TMDL for TP was based on average flows rather than the design flows.

Response E5
This comment does not address, or request any change to, the permit, but rather is focused on the phosphorus TMDL for Quaboag & Quacumquasit Ponds. Therefore, the agencies refer the commenter to the TMDL, and note that it sets a maximum mass load for the Spencer WWTP and that mass load limits do not change as a function of the facility flow.

Comment E6: Enforceable Deadlines
EPA should establish enforceable deadlines to the potential WWTP upgrade, requiring that the upgrade happen in the quickest achievable time frame. This could be accomplished in the permit, or in a separate enforcement order, which would also make it clear that the existing permit authorizes discharge through outfall 001, not the wetland beds.

[12] The nitrogen load in lbs/day is the product of the design flow (1.08 MGD), the nitrogen concentration (13.6 mg/L in 2004-2005 or 14.3 mg/L in 2011-2016), and a conversion factor (8.34).

Response E6

The compliance schedule deadlines in the permit are enforceable and are intended to require compliance as soon as possible. *See also* Response C3. While it is true that the Region could have placed the compliance schedule in a separate administrative order, the Region has opted to keep it in the permit. *See* Response A7. EPA does not mandate or prohibit any specific treatment process, and while the permit does not explicitly prohibit the Town from using the wetland beds, the Town has stated that it plans to abandon the beds as part of the upgrade. *See* Response C6.

Comment E7: Schedule

We agree with the comments dated March 19, 2018, submitted by James P. Vander Salm, attorney for the Quaboag-Quacumquasit Lake Association ("QQLA letter") that the EPA and MassDEP have given the permittee a long time to tackle this already. The 2006 TMDL on page 44 said that a feasibility study to meet the TMDL limits was in the works at that time, 12 years ago. Giving the permittee until 2024, the entire life of the upcoming permit, and 18 years after a feasibility study, is too long a time frame.

Response E7

The TMDL cites a feasibility study "to be submitted within 6 months to evaluate options for meeting the summer 0.2 mg/L (1.8 lb/day) final limit." QQ TMDL at 44. The referenced limits, however, are different from the limits in the Final Permit. The former limits have been achieved for several years at the Spencer WWTP; the limits in the Final Permit are more stringent. To say that the agencies "have given the permittee a long time to tackle this already" and to suggest that the compliance schedule should be shortened as a result, conflates the limits. The agencies have determined that the schedule in the Draft Permit is appropriate. *See* Response C3.

Comment E8: Seasonal TP Limits

CRC concurs with the QQLA letter that the TP seasonal limits should be in place for the period April 1 – October 31.

Response E8

Please see Response C2.

Comment E9: Orthophosphorus

Additionally, we request that dissolved orthophosphorus monitoring be required during the winter months, for the same reason it is required in the Belchertown MA permit.

Response E9

Please see Response D1.

Comment E10: Interim and Final Limits

Typically, interim and final limits are shown separately in the table at 1.A.1. The Draft Permit only lists the new total phosphorus limits, and a reader needs to refer to Section 1.B.2 to find out those limits won't go into effect until the end of 2024.

CRC generally endorses all of the comments in the QQLA letter and those submitted by Chicopee4Rivers Watershed Council.

Response E10
It is standard EPA practice to display Final Permit limits in Table I.A.1., and to add compliance schedule information (including any interim limits) in a footnote and/or Special Conditions.

Comment E11: I/I
Progress to reduce infiltration and inflow (I/I) should be further along

The current 2007 permit required an I/I report due in March 2008, then annual reports. At the public meeting, the permittee described a MassDEP-required I/I report nearing completion. Given that the current permit already required significant I/I work, we can't figure out why there is no mention of the progress made to date in the Fact Sheet. Has the town made sufficient progress to reduce unnecessary inflows in the last 11 years?

Response E11:
The Town has engaged in sewer maintenance activities such as video inspections, cleaning, point repairs, manhole repair, cured-in-place pipe lining, and sewer reconstruction. In 2017, the Town reported that dry weather influent flow (an indication of I/I) decreased by 0.11 MGD since August 2005.

The Town is currently conducting a Sewer System Evaluation Study and plans to request funds from the State Revolving Fund for larger repairs prioritized by the study.

F. COMMENTS SUBMITTED MARCH 20, 2018 BY CONNECTICUT FUND FOR THE ENVIRONMENT

The Connecticut Fund for the Environment and its bi-state programs Save the Sound and The Long Island Sound Soundkeeper, submit the following comments on the Draft National Pollutant Discharge Elimination System (NPDES) Permit for the Town of Spencer Wastewater Treatment Plant ("WWTP").

Comment F1
The Town of Spencer's WWTP discharges into the Cranberry River. The Cranberry River is a tributary to the Sevenmile River, which is a tributary to the Connecticut River. Thus, the discharge from the Spencer WWTP is a discharge from an upstream state's point source that has an impact on the waters of the Connecticut River and ultimately the waters of Long Island Sound. The estimated nitrogen loading for the Spencer WWTP based on a revised baseline analysis indicates a total nitrogen load of 86.2 lb/day, using the average influent flow from 2011 through 2016 of 0.76 MGD.

Despite this and similar to the current draft NPDES permit proposed for the Springfield Water and Sewer Commission, this draft NPDES permit for the Spencer WWTP has no enforceable

limit for nitrogen. Rather, the permit requires an evaluation of alternative methods of operating the existing wastewater treatment facility to control total nitrogen levels and, it sets as a "benchmark" that the facility not exceed the TMDL target of a 25% reduction over the 2004-2005 baseline loadings based on the "benchmark" of 86.2 lbs/day. This approach raises serious legal issues such as: What is a benchmark? Is a benchmark enforceable by EPA or is it enforceable by citizens in a citizen suit action under the Clean Water Act? These questions and the legal uncertainty they cause are eliminated if a numerical limit for nitrogen is required in the permit. Therefore, an enforceable limit must be included in the permit.

Response F1

The permitting agencies understand and share the commenter's concern about nitrogen loads to Long Island Sound originating from Massachusetts sources. The 2000 TMDL focusses on the overall loading totals from wastewater facilities in the three upriver states (Massachusetts, New Hampshire, and Vermont), setting an aggregate WLA for these out-of-basin sources of a 25% reduction below the total estimated load rather than setting hard limits for each out-of-basin facility or even each state. As previously discussed, the WLA has been met and surpassed.[13] *See* Response B4; FS at 21. The nitrogen conditions in the Final Permit for the relatively small Spencer WWTP are a reasonable means to implement the 2000 TMDL with respect to Spencer and control nitrogen discharges from the WWTP and are consistent with an aggregate WLA that establishes overall (not facility-specific) reductions for out-of-basin sources.

That said, while the TMDL has resulted in significant reductions and measurable water quality improvement, EPA recognizes that more needs to be done in the Connecticut River watershed and is fast tracking an evaluation of further reductions that may be necessary. It is anticipated that a total nitrogen threshold will consider both the DO effects in Long Island Sound as well as the more localized effects of nitrogen loading in the Connecticut River Estuary. EPA is currently in the process of developing a total nitrogen allowable threshold for the Connecticut watershed. EPA's permitting approach for the Spencer WWTP is further reasonable in light of the LIS Strategy. *See also* Response B5. In the interim, benchmarks can provide a mechanism for encouraging permittees to optimize their treatment processes to reduce pollutant discharges. Benchmarks fit in with EPA's larger LIS Strategy to keep nitrogen loads below the WLA target in the 2000 TMDL, while also providing EPA with facility-specific information that, in concert with information derived through the technical information and tools to be developed under the LIS Strategy, can be used in future permitting action to assess the need for, and levels of, nitrogen effluent limits.

[13] The 2000 TMDL estimated the total nitrogen load from out-of-basin wastewater facilities to the Connecticut River at 21,672 lbs/day and set an aggregate WLA of a 25% reduction, or 16,254 lbs/day. FS at 21, Table 3. By 2004-2005, the total load for the River was estimated to be 13,836 lbs/day—a 36% reduction. *Id.* By comparison, the Final Permit sets a benchmark for the Spencer WWTP of 86.2 lbs/day.

G. COMMENTS SUBMITTED MARCH 26, 2018 BY THE TOWN OF STURBRIDGE, MASSACHUSETTS

Comment G1

The Conservation Commission of the Town of Sturbridge has reviewed the new Draft National Pollution Discharge Permit (NPDES) for the Spencer Wastewater Treatment Plant (SWWTP) to discharge treated domestic and industrial wastewater into the Cranberry River and subsequently into the 7 Mile River. We would like to offer the following comments to the EPA for consideration.

Sturbridge has a unique situation in which high water backflow from Quabaug Pond enters Quacumquasit Pond (South Pond). South Pond has a very slow recharge rate, so any effluent from the Spencer Plant that is entering Quabaug Pond has the potential to impact the water quality in South Pond. South Pond is a Great Pond and this resource has significant ecological value which is compromised by herbatious [sic] growth supported by these effluents. South Pond is mapped Priority Habitat for state-listed species and is home to a pair of nesting bald eagles. We also have reports of a possible second nest site on this pond.

The Town of Sturbridge and Quabaug and Quacumquasit Lakes Association (QQLA) have worked to reduce non-point source discharges to South Pond, in the past.

We recognize that the attainment of water quality standards depends on a dual approach to address both point and non-point sources of pollutants. We will continue to work to make improvements through project review and educational efforts with private landowners who surround South Pond but ask that the SWWTP be held to high standards to reduce and improve their wastewater discharges.

Although the Conservation Commission does not support discharging wastewater into our resource areas, we are in support of the proposed improvements in the NPDES Permit. In particular, the requirements to continue to reduce nutrient loads through innovative add on treatment processes. However, these improvements will only work if the MA Department of Environmental Protection (DEP) and EPA monitor and enforce this. It is imperative that monitoring and reporting requirements are added to the NPDES Permit and enforced by the EPA and DEP.

Response G1

The agencies note that the Final Permit does hold the facility to a higher standard of phosphorus control than the 2007 permit—a standard that will require an upgrade of the Spencer facility. Such an upgrade will reduce the plant's phosphorus input to the ponds, which the QQ TMDL found is already comparatively minor. QQ TMDL at 17-18. Further, the TMDL recommends reducing phosphorus loading to Quacumquasit Pond in particular by increasing the height of the existing backflooding gate between the two ponds by 18 inches *Id.* at 43-44. The agencies understand that this modification has not yet occurred, but encourage the communities to consider it further.

With respect to the request for adding phosphorus monitoring and reporting requirements, the Draft Permit already contained such requirements, and they have been carried through to the Final Permit. In particular, the permittee must monitor effluent phosphorus three times per week from April 1 through October 31 and once per week from November 1 through March 31. *See* Final Permit at Part I.A. The permittee must submit its monthly monitoring data to the agencies in discharge monitoring reports (DMRs). *See id.* Part I.H.

H. COMMENTS SUBMITTED MARCH 28, 2018 BY CARL D. NIELSEN

Comment H1: QQLA Efforts

I am writing on behalf of QQLA to add a few additional comments for the Spencer WWTP Draft Permit beyond those mentioned during the public hearing on 3/26/18. As I had stated during the public hearing, ESS Group, Inc. has been working with QQLA for over 20 years. To provide the lakes with expertise in the assessment and management of both Quaboag (North) and Quacumquasit (South) Ponds. As you may know, there is very little data documenting phosphorus within the lakes themselves over time. However, there is a decent record of water clarity measurements and documentation of algal growth and nuisance aquatic weed growth over many years which are symptoms of eutrophication which is accelerated by a range of anthropomorphic activities within the large watershed.

Phosphorus has been identified as a significant problem in these lakes since before ESS became involved. The phosphorus from the watershed and the SWWTP accumulate in these lakes over time and due to this, the water quality will continue to decline, even as sources to the lakes, such as the SWWTP, continue to make improvements. The TMDL identifies phosphorus as the primary nutrient of concern and recommends that phosphorus be reduced to the ponds to achieve the water quality goals.

For over 20 yrs QQLA has worked to do this with ESS support.

QQLA worked to help pass the phosphorus detergent ban in the state.

ESS worked with QQLA to win a 319 NPS grant to assess and implement storm water BMPs.

We have worked with local residents to implement site-by-site infiltration projects, landscaping projects designed to encourage infiltration, and negotiate community rates for septic pump-outs and maintenance.

We have worked to directly measure the impacts of septic on the lakes by sampling groundwater seepage into the lake. Septic loading was shown to be a very minor source since phosphorus does not travel well through soils and due to the overwhelmingly large load being delivered to the lakes from their large watershed. So although it is convenient for SWWTP to point to septic systems as the problem, this has already been documented to be false in these systems.

ESS has worked with QQLA to manage algal blooms and excessive weed growth in both ponds annually for over 20 years. This work must be done annually to maintain water quality due to the excessive phosphorus loading.

As you can see from the list of actions that have been pursued and implemented by QQLA, it is clear that they are not only focused on the loading from SWWTP. We recognize that this is not the only source of phosphorus in the watershed, but it is the one that is being examined now through the issuance of a new permit and thus it is the focus of attention.

Response H1
The agencies appreciate the efforts of QQLA and others to improve water quality in the two ponds. The agencies expect the phosphorus limits in the permit, which are based on the waste load allocation derived by the state through a detailed study of the watershed, to contribute to further improvement. Please also see Responses C1 through C7.

Comment H2: South Pond Flushing Rate
The following comments are offered in light of the above to further strengthen the permit:

South Pond's flushing rate is slow, at approximately 1.5 to 2 years. Therefore, backflows that this pond receives remain in the lake to fuel algal blooms and add to the internal nutrient recycling within the lake. It will be essential to modify the permit to limit the potential for phosphorus to enter South Pond. One way to do this will be to extend the summer limits to include April, a month when spring backflows are prone to occur.

The gate between the lakes was installed nearly three decades ago to reduce backflows of phosphorus rich water from Quaboag Pond to South Pond that occurs during the annual high spring flows, as well as during many other significant storms throughout the year. The gate is not sufficiently high to stop all backflows during the typical spring flows or during larger storm events. We would recommend that SWWTP be required to fund a study to evaluate the feasibility of raising this gate by the 18" recommended in the TMDL. The gate was designed to accommodate this change, but there are minor local concerns over flooding property along the interbasin connector. The feasibility study should include a hydrologic analysis to evaluate the potential impact of the higher gate on these properties. If this study were successful and allowed for a raising of the gate height, it has been shown by MassDEP that this would eliminate over 90% of the backflows and effectively resolve the external loading issues for South Pond.

Response H2
EPA has changed the Final Permit such that the warm weather phosphorus limits will be applicable in April, as requested in this and QQLA's comments. *See* Response C2.

As for the recommendation that the Final Permit require the Spencer WWTP to fund a study to evaluate the feasibility of raising the height of the gate to overcome "minor" concerns about flooding along the interbasin connector, the agencies respectfully decline to add such a condition. The comment does not identify any provision of federal or state law as requiring such a condition or even a recommendation in the QQ TMDL that the

Spencer WWTP should be required to fund such a study.[14] Moreover, the TMDL found that the phosphorus load to Quacumquasit Pond attributable to backflooding from Quaboag Pond is largely a non-point source phenomenon, rather than a function of the Spencer WWTP. QQ TMDL at 43 and Table 11. In addition, the Draft Permit already proposed more stringent phosphorus limits that would require the WWTP to undertake a costly upgrade to decrease its phosphorus load to both ponds—limits that are consistent with the Waste Load Allocation established in the QQ TMDL and that are carried through to the Final Permit. In other words, the facility's proportion of the total load to Quacumquasit Pond, which the TMDL found was already low, is expected to decrease even further through upgrades that will themselves require Spencer to expend a considerable sum. The comment, meanwhile, offers no estimate of the additional cost to Spencer, no real explanation of the need for the requested study, and no justification—legal or otherwise—for why the permit should require Spencer to pay for it.

For these reasons, the agencies have not added a requirement to the permit to fund the requested study. If further study is nonetheless necessary to overcome the referenced concerns about flooding, it could perhaps be a worthwhile use of QQLA funds, possibly with the assistance of a grant, or in partnership with local municipalities in the watershed, including the three towns bordering the pond (Brookfield, East Brookfield, and Sturbridge).

Comment H3: Move the outfall downstream of the ponds

The backflowing phosphorus load accumulates in South Pond sediments to add to the internal phosphorus load in subsequent years. South Pond is now at a point where an alum treatment is recommended at a cost of over $250,000 to re-set the lake. A similar solution for Quaboag Pond would be less feasible due to the rapid flushing rate, although an alum dosing station at its inlet is being considered at a similar cost. Another alternative that has been considered in the past has been to entirely bypass the lakes with the discharge from SWWTP by piping the discharge directly to the Quaboag River downstream of North Pond. We would recommend that SWWTP fund a feasibility study for these potential solutions and be responsible for funding the implementation of these improvements if SWWTP is unable to achieve the targeted phosphorus

[14] While the QQ TMDL document recommends raising the gate, it notes that an evaluation of concerns over flooding in the interbasin connector related to raising the gate occurred during the preparation of the TMDL. QQ TMDL at 45. The TMDL document reports that the evaluation concluded that "the problems of flooding the houses are more to do with upstream floodwater and flow restrictions at the Shore Road bridge, rather than backing up water from Quacumquasit gate area into Quaboag Pond as residents suggest." *Id.*; *see also id.* at 58-59 (estimating that raising the gate by 18 inches "could be expected to raise water levels in [Quaboag Pond and the interbasin connector] an amount unlikely to exceed 0.2 feet"), 65 (noting that raising the gate by 18 inches "would only amount to less than 0.2 feet or about 2 ½ inches on top of a typical 2-foot flood"). The only further gate-related study suggested in the TMDL document is "an engineering analysis" to determine whether "the current structure can simply be modified and is strong enough," *id.* at 45, which the commenter suggests is unnecessary. ("The gate was designed to accommodate this change . . . ."). In any event, the comment neither acknowledges these statements from the QQ TMDL nor explains what further flooding study the permit should require or why.

loads specified within the permit by the deadlines recommended by QQLA (which are more expedient than those laid out in the draft permit).

Response H3

The comment does not identify any federal or state requirement for adding a permit provision(s) to require the permittee to move the outfall, conduct alum treatments in one or both lakes, or conduct the requested feasibility studies. As the permit already contains effluent limits and other conditions necessary to ensure that the effluent will not cause or contribute to a violation of water quality standards, there is no basis for such a requirement. The TMDL established a plan for lowering the load to a level needed to achieve water quality standards that does not entail moving the outfall or treating the ponds as requested in the comment.

Comment H4: Remove the Wetland Beds

We would ask that whatever changes are made to redesign or reconfigure or upgrade the SWWTP, the existing wet beds should be removed entirely or removed and lined with impermeable barrier to prevent future leaching from the beds if the wet beds are to continue to receive water from the plant during normal operation or during bypass flows. We do not want these illegal wet beds to continue to be a source of discharge to groundwater, particularly as these wet beds are likely to be heavily saturated with phosphorus and other pollutants.

Response H4

The Final Permit requires the Town of Spencer to provide detailed plans regarding the wetland beds in the Compliance Schedule Annual Report (Annual Report). As of this Response to Comments, the agencies understand that the Town anticipates abandoning the wetland beds and routing all flow through a new tertiary treatment system. The Annual Report requirement will provide public notification regarding the Town's plans for the wetland beds and improve public accountability of the WWTP upgrade process. Please see Response C5.

Also, the Final Permit limits account for phosphorus and other pollutants that are likely entering the Cranberry River from the wetland beds. Thus, removal of the wetland beds, although perhaps preferred, is not a necessity for reducing phosphorus and other pollutant inputs to the watershed. Moreover, EPA does not generally prescribe the means a facility must employ to meet its permit limits. Please see Responses C3, C4, and E6.

Comment H5: Ponds Downstream of POTW is Unique Situation

Finally, we believe that the SWWTP discharge being located upstream of these lake systems is rare, if not unique in the state of Massachusetts. The fact that South Pond is a cold-water fishery which is stocked routinely by Mass F&W with trout speaks to its water quality. However, we believe that continued stress being placed upon this system from SWWTP and other sources of phosphors from the watershed is resulting in the deterioration and continued degradation of these systems. We ask that EPA and MassDEP keep this in mind as they decide how to consider the comments that are received (from all parties) and that these agencies continue to strive to protect

the environment and these waterbodies by making the final permit one of the most protective permits that they issue in all of EPA Region 1.

Thank you for the opportunity to review and submit these comments on the SWWTP draft permit. If you have any questions, I can be reached at the contact information below.

Response H5

The situation in the Quaboag and Quacumquasit Lakes, in which a lake or impoundment[15] receives treated municipal wastewater, is neither rare nor unique in Massachusetts. Moreover, the TMDL identified the Spencer WWTP as one of the smaller sources of phosphorus to the ponds. Below is a short list of ponds and impoundments that have suffered nutrient impairments from upstream POTWs. In each of these cases, as with the Quaboag and Quacumquasit Ponds, a TMDL is in place to address phosphorus impairments to which the POTW contributes.

- Gleasondale Impoundment in Stow, MA receives treated wastewater from the Westborough, Marlborough Westerly, and Hudson POTWs.
- The Powdermill Impoundment in Hudson, MA receives treated wastewater from the above POTWs, plus the Maynard POTW.
- Box Pond in Bellingham, MA receives treated wastewater from the Milford POTW.
- Dutton Pond, Greenville Pond, and Rochdale Pond in Leicester, MA receive treated wastewater from the Leicester POTW.
- Texas Pond in Oxford, MA receives treated wastewater from the Oxford-Rochdale POTW.
- Forge Pond and Aldrich Lakes East and West in Granby, MA receive treated wastewater from the Belchertown POTW.

Because phosphorus from POTWs accumulates in downstream impoundments, EPA includes stringent, year-round phosphorus limits for POTWs with downstream impoundments that are nutrient-impaired. The summer total phosphorus limit of 0.1 mg/L and the winter limit of 0.2 mg/L for the Spencer WWTP are among the most protective for POTWs in New England. Moreover, the permit limits are consistent with the WLAs in the TMDLs that the Commonwealth of Massachusetts developed for these two ponds. *See* Response C1.

[15] Quaboag Pond, although naturally formed, functions similarly to a run of the river impoundment. There are dozens of such impoundments in Massachusetts formed by dams.

I. COMMENTS SUBMITTED MARCH 27, 2018 BY LYNN ECKHERT

Comment I1

I write in favor of requiring Spencer MA to cease polluting the waters which are used for recreation. It is sad when the lake is filled with weeds and unattractive for children to learn to swim. It is costly to treat the lake when an efficient and effective waste water treatment plant should be built. The lowest levels of phosphorus should be required.

There should not be any extensions on the time frame. Financial hardship is not a valid reason for extending the time to rebuild the waste treatment plant so as to meet EPA standards. We can no longer allow pollution of the waters which are being polluted by discharge from the plant.

Sincerely

Lynn Eckhert

Lake Quacumquasett Resident

Response I1

The summer total phosphorus limit of 0.1 mg/L and the winter limit of 0.2 mg/L for the Spencer WWTP are among the lowest for POTWs in New England.

The Final Permit includes a reasonable schedule that the agencies have determined requires compliance with the water quality-based phosphorus limits in the permit as soon as possible. *See* Response C3. Moreover, contrary to the assertion in the comment, affordability is an allowable consideration when developing such a schedule. *See, e.g.*, *In re City of Taunton*, 17 E.A.D. 105, 180-83 (EAB 2016) (discussing the EPA's use of affordability information in determining the appropriate length of a compliance schedule). *See also* Responses C1 to C7.

J. COMMENTS SUBMITTED MARCH 27, 2018 BY BOB SHIELDS

Comment J1

My name is Bob Shields, and I own a home at [address redacted].

We own lakefront property on Quacumquasit.

Quacumquasit is a pristine body of water. Its cleanliness is a primary reason we purchased our home there.

We are very concerned about the impact the sewage treatment plant will have on the quality of the water and the many organisms and fish that make Quacumquasit their home.

Since the plant will discharge into the Seven Mile River. the lower limit of phosphorus must be .05 because the discharge is to a river or stream entering a lake, as defined in the EPA's "Gold Book."

The permit to allow Spencer to rebuild the plant is excessive. The permit should have 7 mo (growing season) with the lower amount of phosphorus and only 5 month (winter) of higher phosphorus allowance. (all the other treatment plants have have [sic] a longer growing season).

Spencer is claiming "financial hardships" as an argument while their neighbors property and lifestyles degrade. Its a fallacy. We have to continually raise money to control the weeds caused by high phosphorus. The deposition of phosphorus in the sediment is cumulative and will take thousands of dollars to mitigation [sic].

Algae blooms and invasive weeds will not only impact our ability to enjoy our pristine lake, but will also negatively impact our property value. Who will compensate us for the change in circumstance?

As our lawyer capably argued, we believe

- The proposed new phosphorus limits must be lower to comply with the facility's TMDL wasteload allocation.
- The growing season phosphorus limit should apply for seven months. The timeline for compliance with the proposed new phosphorus limits is unreasonably long.
- The phosphorus timeline should be more specific
- The phosphorus timeline should require both a detailed Annual Progress Report and an Annual Public Presentation regarding the town's progress.
- The agencies should appoint a third-party reviewer of the town's progress.
- There should be specified, stern and unpleasant consequences for failing to comply with the phosphorus timeline.

Response J1

The Gold Book recommends a water quality criterion of 0.05 mg/L for phosphorus in a river entering a lake.[16] This means that, at the point that the river flows into the lake, the ambient total phosphorus concentration of the river should be no higher than 0.05 mg/L as a 4-day average. It does not mean, as the comment implies, that the Spencer WWTP should achieve an effluent phosphorus limit of 0.05 mg/L, simply because it discharges to a river that *ultimately* enters a lake. Rather, EPA developed permit limits for the facility that are consistent with the Gold Book's recommendation of 0.1 mg/L for a stream that

[16] U.S. EPA, Quality Criteria for Water, EPA 440/5-86-001 (May 1, 1986).

does not discharge *directly* to a lake (like the Cranberry River) and with the WLA for the facility in the phosphorus TMDL for the two ponds. *See* FS at 23; *see also In re City of Attleboro*, 14 E.A.D. 398, 434-35 (EAB 2009) (observing that the Gold Book "recommends in-stream phosphorus concentrations not greater than 0.1 mg/l for streams not discharging directly to lakes or impoundments"). For more on this issue and the others raised in the comment, please see Responses C1 to C7, I1, and K1.

K. COMMENTS SUBMITTED MARCH 27, 2018 BY LELAND MOULTON

Comment K1

We live on Quacumquasit Lake in Brookfield, MA. We are very concerned about the weeds and chemicals in our Lake. Much of this is due to the discharge from the Spencer Waste Water Treatment Plant (SWWTP). This is not acceptable! **SWWTP has had years to fix their discharge process that pollutes our Lake, but they have done nothing!**

We look to you to hold the SWWTP accountable, and mandate that they fix this serious problem **now**! Please mandate that they follow strict guidelines including ongoing Lake water testing. Also please monitor them to ensure they are adhering to your guidelines and Lake water testing. Our families and friends swim in our Lake.

Response K1

While the Spencer WWTP was once the largest source of phosphorus to the ponds (estimated at 45% of the total load), its current share of the total phosphorus load is comparatively small, owing in part to the previous upgrades the facility has undertaken to lower its contribution and meet the phosphorus limits in previous iterations of its permit. *See* QQ TMDL at 15. For instance, since 2007, the Spencer WWTP has operated under a permit that, with a 0.2 mg/L warm weather phosphorus limit, was among the strictest in Massachusetts at the time of issuance. The 2007 permit lowered the warm weather limit from 0.3 mg/L to 0.2 mg/L and the cold weather limit from 0.75 mg/L to 0.3 mg/L. The Spencer WWTP meets its phosphorus limits most of the time.

Nevertheless, EPA recognizes that, although the facility has reduced its contribution to the phosphorus load of the two ponds, the Spencer WWTP is still a significant point source in the ponds' watershed. The Final Permit appropriately sets the phosphorus level equal to that of the water quality criterion of 0.1 mg/L from April through October. This limit and the winter limit of 0.2 mg/L are among the lowest for POTWs in New England. *See* Responses C1 to C7.

Finally, the fact that the five-year term of the 2007 permit expired prior to issuance of the Final Permit does not mean that the Spencer WWTP is somehow out of compliance with the Clean Water Act. As EPA stated in the Fact Sheet, the Town filed a timely application to renew its NPDES permit, as required by federal regulations. FS at 4. As a result, the Facility's 2007 permit was administratively continued pursuant to 40 CFR § 122.6(a). *Id.*

L. COMMENTS SUBMITTED MARCH 27, 2018 BY JEFF CLARK

Comment L1

My name is Jeff Clark and I live on Quaboag Pond in Brookfield. I attended the hearing last night in Spencer and want to thank you and Mr. Webster and your colleagues from the state for conducting a very professional and informative hearing. I also understand you need more people to do your job.

I wish to add my agreement to the QQLA attorney comments/points (nine of them).

I firmly believe that since the Town of Spencer has had a lapsed permit for over five years then it should have to proceed at an accelerated construction pace to comply with the lower phosphorus requirements.

Algae growth in our pond has seemed to increase over the last two years and I cannot imagine what it will look like in another six years before the changes are made.

Also believe your enforcement division should be monitoring the Town of Spencer if it is breaking the law by operating effluent to groundwater without a permit.

Response L1

Please see Responses to QQLA Comments and Response K1.

The Massachusetts Water Quality Standards provide that "[a] schedule of compliance shall require compliance at the earliest practicable time, as determined by the Department." 314 CMR 4.03(1)(b). EPA regulations similarly grant EPA the discretion to include a schedule requiring compliance "as soon as possible." 40 CFR § 122.47(a). While the agencies acknowledge the delay in issuing the Final Permit, the schedule for compliance with the total phosphorus limits is appropriate considering the time needed to complete a major WWTP upgrade to meet the more stringent phosphorus limits. *See* Response C3.

It should be noted that the compliance schedule includes calendar dates as deadlines, as opposed to basing the deadlines on time elapsed since the permit effective date. In keeping with this, EPA expects the Town to work diligently to implement the WWTP upgrades as quickly as possible, regardless of the effective date of the permit.

Regarding enforcement, EPA and MassDEP evaluate compliance through inspections of the facility and review of the submitted monitoring data and other reports and routinely coordinate compliance and enforcement activities. Additionally, agency staff field inquiries from the public regarding compliance issues, and any person may report suspected environmental violations to EPA.

M. COMMENTS SUBMITTED MARCH 27, 2018 BY WILLIAM BONNEY

Comment M1

I have lived on the shore of Quaboag Pond, near the SWWTP, for about eight years. During that entire time, year in and year out, the NPDES permit renewal for the SWWTP has been a constant issue.

The SWWTP is clearly out of compliance with the Clean Water Act. It has had many years to renew its permit; I think it has already been given much too much time for this crucial permitting. This environmental debacle cannot continue for more months and years. The permit renewal needs to be effected immediately, so that those of us who live near the lake do not bear any more of the cost to mitigate the algae blooms and invasive weeds that result from the phosphorus deposition.

We see algae blooms and the explosive growth of milfoil and other aquatic invasives every summer. It is the hope of me and my family and neighbors that the EPA will see that this problem is quickly corrected.

Response M1

As EPA stated in the Fact Sheet, the Permittee filed a timely application to renew its NPDES permit, as required by federal regulations. FS at 4. As a result, the Facility's 2007 permit was administratively continued pursuant to 40 CFR § 122.6(a). *Id.* In any event, the Final Permit includes more stringent phosphorus limits than the 2007 permit and an appropriate schedule to meet them. *See* Responses C3, G1, and K1.

N. COMMENTS SUBMITTED MARCH 27, 2018 BY DORIS SMITH

Comment N1

Hello, My name is Doris Smith. My husband, James Smith, and I live on South Pond in Sturbridge, MA. We are very concerned with the run off from the Spencer treatment plant into our lake. We would like to see the EPA put more pressure on the town of Spencer in resolving this issue. This extension of 5 years is not acceptable. Something needs to be done.

Response N1

Please see Response K1.

O. COMMENTS SUBMITTED MARCH 27, 2018 BY SANDRA AND MARTIN BANNISH

Comment O1

Informational Section

My wife and I attended your meeting on Monday, 3/26.

I asked the questions regarding the duration of the permit and the role the EPA plays in the oversight of plans submitted by the permittee.

We have been living full time on Quaboag Pond since December, 2014.

(Although I had been renovating the property part time since April 2011).

We paid $11,000 this February to put in a new septic system with a leach field 100' away from the lake front.

Comments for the Record

Regarding the statement made yesterday concerning the lakefront homes as a source of nutrients in the lake:

Yes, there is no doubt that lakefront properties can contribute to the nutrient levels in the lake.

However, I think the impact that was implied by the McMansion comment is overstated.

The lake is one of the least populated lakes in Central Massachusetts.

There have been few (less than 5) new houses built on the lakefront in the last 5 years,

There are at most 2 lakefront homes on the west side of the lake.

Quaboag Street on the north east border of the lake separates the houses from the lakefront.

Many of the homes on the rest of the lakefront have been converted from seasonal to year round residences.

On my street, there are 4 houses. One is seasonal, one is unoccupied, one has a single resident, and only my wife and I live in our house.

Needless to say, there is not a lot of nutrient infiltration coming from these homes.

The most populated street is Pine Lane. Most of the lakefront homes on that street are owned by older residents, and few homes contain more than 2 residents.

One indication that there is a high level of nutrients entering the lake from Seven Mile River is that every summer, the weed bed that grows on the downstream side of the Shore Road bridge is getting larger, and now extends roughly 500' from the bridge.

No other section of the lake shows that kind of growth.

The property values on the lake are depressed, in part, because of the reputation of the Spencer Waste Treatment plant.

I personally was told by a friend in Western Massachusetts who was looking for lakefront property that he would not purchase on the lake due to the water quality.

Response O1
Please see Response K1.

P. COMMENTS SUBMITTED MARCH 27, 2018 BY STEPHEN MARSHALL

Comment P1
My name is Steve Marshall and I am a longtime summer resident on Quacumquasit (South) pond in Sturbridge. While I am heartened to see the EPA's involvement in cleaning up the phosphorus emissions from the Spencer Waste Water Treatment Plant (SWWTP), I'm concerned that the efforts are neither specific enough nor rapid enough to make a significant difference.

For well over a decade, the SWWTP has dragged its feet on implementing changes. First they denied the existence of a problem, and then they denied they had any culpability in the problem. Once they were faced with overwhelming evidence, they have moved to new arguments to defer taking action, including pleading poverty. I understand these proposed fixes are expensive, but so are the costs of polluting our waters. We always find ways to pay for things that are priorities; stopping contamination from the SWWTP needs to become a priority.

During the time of SWWTP inaction, the algae blooms and invasive weeds have gotten worse and worse in the Quacumquasit and Quabog ponds, and the costs to mitigate these effects have grown. These bodies of water effect a wide swath of the community beyond the property owners around each pond; both ponds have public boat access and Quacumquasit has a public beach, all of which are enjoyed by many people in the wider community.

It is not fair for SWWTP to continue to find ways to delay and defer responsibility for their actions. They need to be held accountable in concrete ways, including a faster and more specific timeline to meet the new phosphorus limit, and specified consequences if they fail to comply.

Please do not allow SWWTP to pollute the waters of its neighbors with impunity. Their continued inaction indicates they will never make cleanup a priority unless they are held accountable by a regulatory agency. Please provide them the consequences and incentives to make SWWTP cleanup a priority.

Response P1
Please see Responses C1 to C7 and K1.

Q. COMMENTS SUBMITTED MARCH 28, 2018 BY DONALD TAFT

Comment Q1
I was unable to attend the public hearing on the SWWTP last night as I am out of town for a couple of weeks. I was, however able to watch it via computer.

I thought that the hearing went very well. I want to thank you for hosting the hearing and for giving us the opportunity to express our concerns and issues. I hope the you will give them serious consideration.

One of my major concerns has always been that the lost water leaves the wet beds and leaches to ground water thru the unlined uncapped dump, which is adjacent to the wet beds. And MA DEP solid waste department admits that because the dump was in operation prior to regulations and they have no clue as to what may in fact be buried on that site. With the plant upgrades being so far away the wet beds will continue to be an issue.

Thank you again for your dedication to the NPDES process in MA.

Response Q1
EPA and MassDEP appreciate the comment. We take this opportunity to assure you that we take public comments seriously and routinely make changes to a Final Permit because of public comments received, as we have done here.

However, the issue raised in this comment, regarding an unlined landfill in the vicinity is outside the scope of this NPDES permit action, which is limited to discharges from the wastewater treatment plant to Cranberry River. The agencies encourage the commenter to follow up with James McQuade, Solid Waste Section Chief for MassDEP's Central Regional Office at 508-767-2759 or at james.mcquade@mass.gov with any concerns about groundwater contamination from the former dump or the nearby landfill.

R. COMMENTS SUBMITTED MARCH 27, 2018 BY CARL F. NIELSEN

Comment R1
My name is Carl F. Nielsen and I am a resident of Sturbridge living on South Pond. I am also a board member of the Quaboag/Quacumquasit Lake Association (QQLA).

I would like to address the artificial wet lands that have been an issue for both of the down stream lakes. These wet lands are not lined and have been constructed on or adjacent to an old abandoned land fill that was never capped (as DEP records show). Any water that enters said wet lands leaches through to ground and then to surface water, then carried to the lakes via. the Seven Mile River.

I understand that the draft permit recognizes this deficiency in the SWWTP operation and is going to mandate that said wet lands will be abandoned in several years. Thank you, the EPA and the DEP for addressing this issue and proposing this mandate.

My question with regards to the artificial Wet Lands is: **When the Artificial Wet Lands are abandoned, will they be capped so as to prevent storm water from leaching through years of accumulated contaminants then into the ground and will the SWWTP be mandated stop discharging bypasses water, during extreme storm events, into said wet lands?**

An extreme weather bypass to the wet beds will continue to be an illegal ground water discharge without a ground water permit with the Massachusetts DEP. I realize that a treatment bypass is not allowed in the permit but we have been told by the SWWTP operators that all treatment

plants have to do it in extreme rain events. I understand this and also understand that in Spencer, their I/I issues must be addressed in order to minimize the need to bypass treatment. Until the I/I issues are addressed they will bypass.

Response R1
Regarding the comment that the wetland beds were "constructed on or adjacent to an old abandoned landfill that was never capped," the comment refers to unspecified "DEP records," but does not provide any. *See* Response Q1.

The Spencer WWTP has not reported any bypasses during the 2007 Permit term. Please see Response E11 for details of the Town's activities to reduce I/I.

EPA understands that the Town's preliminary plans for the wetland beds are to abandon them in place and use them as a conservation area. Under such a scenario, the wetlands would no longer receive any secondary effluent. The agencies are not aware of whether the Town may choose to cap the abandoned wetlands, however, the Final Permit requires the Town to report its plans regarding the wetlands in each Compliance Schedule Annual Report. Please see Response C5.

The comment asserts that a bypass to the wetland beds will violate state groundwater discharge permitting requirements. The Final Permit is a NPDES permit issued under the federal Clean Water Act (and implementing regulations) and a state permit issued under the state Clean Waters Act (and implementing regulations). The Final Permit is not issued pursuant to the state's groundwater discharge permitting program and, consequently, does not address the applicability of MassDEP's groundwater discharge regulations.

For the other issues raised in the comment, please see Responses C1 to C7.

S. COMMENTS SUBMITTED MARCH 28, 2018 BY CAROL NEILL

Comment S1
My name is Carol Neill. My husband Thomas Neill and I have lived on South Pond in Sturbridge, MA since 1978. As the years passed by so did the increase in extra monies we have been asked to donate to control the weed growth caused by the high phosphorous content. When we first came here and joined this beautiful lake's Association we paid our yearly dues and that was it. Now annually we are asked to donate to the cause.

Over the years we have both worked tirelessly to have a beautiful home on a beautiful lake so that when we retired we could fully enjoy all that was offered from living on the water. My husband is a great fisherman and loves to be out at the crack of dawn viewing the sunrise from his fishing boat and the beauty of it all. Well, now we are both retired and have seen the weed growth that has been developing over the years. Our income is limited and we resent the fact that we are hit up every year to constantly battle the new growth of weeds that are only increasing if they are not treated. We DO NOT like the use of the chemicals to treat the problem algae blooms and weeds; but what choice is there? After treatment the lake is not usable for fishing or

swimming for 2 or 3 days. Notices informing all residents and the public of this has to be posted all around the lake and Public Beach each time by someone, namely lake residents. The notices then have to be removed after completion of treatment. This is now a yearly ritual.

We have nieces and nephews and their families who love to come here and fish and swim. We are so happy to have them. A lot of times they are in the weeds and have to go to a different spot. There is also constant cleaning of the shoreline needed as the weeds are deposited there with each storm and windy days.

Our front yard is everyone's front yard, unlike a non lake resident whose property is their own. This lake is very well known for its incredible fishing; and we have the Public Beach at one end for everyone to use and enjoy. We pay high taxes to live on this amazing lake. We do not want to see our "Front Yard" deteriorate and fill with algae blooms and weeds. We want it to stay clear for recreational boating, swimming and fishing. We do not want to see our property values go down as a result, making it difficult to sell a home if necessary. The fact that the SWWTP is allowed to discharge into the Seven Mile River which ends up in North Pond and then into South Pond makes it imperative that they comply with the guidelines. Spencer has had 10 years of operation on a 5 year permit. Why is Spencer being allowed this amount of time to rebuild and keep operating?

The permit should have a 7 month growing season with the lower amount of phosphorous and only 5 month winter of higher phosphorous allowance. It appears that all other treatment plants have the longer growing season. Why should Spencer be an exception? Spencer should do what is right and follow the same guidelines as every other treatment plant. They are causing their neighboring towns property and lifestyle hardships. This constant accumulation of phosphorous in the sediment will continue to use up thousands of our hard earned dollars every year to control, not even to eliminate, but just to control. More money for the "Lake People" to dish out of their pockets.

Back in 1978 we bought and created our dream home for our retirement and forever. SWWTP needs to comply and operate within all the guidelines for all phosphorous limits, waste load allocation, growing seasons and all other [sic]. The lower limit of phosphorous must be .05 as it is entering our lakes, (our front yards and the public's front yards). This is as specified in your EPA Gold Book. They need to be held accountable for all their actions and should be required to annually compose and disclose their progress. Perhaps an imposed daily fine should be specified for failing to operate properly, and if not, why not.

We are asking and pleading for the EPA's assistance in forcing the SWWTP's compliance in keeping our area watersheds clean and useable for all.

Response S1

Although a significant source of phosphorus to South Pond (aka Quacumquasit Pond), the Spencer WWTP is not the only source; according to the QQ TMDL, it contributes a relatively minor portion of the overall phosphorus load to the pond. *See* QQ TMDL at 42,

43. In any event, the phosphorus limits in the Final Permit are consistent with the WLA in the TMDL and more stringent than those in the 2007 permit. While the agencies acknowledge the delay in issuing the Final Permit, we also note that the new seasonal limits of 0.1 mg/L and 0.2 mg/L are among the lowest for POTWs in New England. *See also* Responses C1 to C7. Regarding the reference to the Gold Book criterion for phosphorus, please see Response J1.

Also, the Final Permit has changed the starting month of the warm weather phosphorus limits from May to April, meaning that the more stringent limit will be in effect for 7 months each year, as requested in the comment. *See* Response C2.

Finally, regarding the comments that the facility should be required to disclose annual progress and that a daily fine should be specified, please see Responses C5 to C7.

T. COMMENTS SUBMITTED MARCH 28, 2018 BY ED PERLAK

Comment T1

Our family has owned property on Quaboag Lake in Brookfield for close to 70 years. Over the past several decades we have witnessed a marked deterioration of the lake condition and the adjacent area.

By now you have heard the evidence and seen the documentation presented by the QQLA regarding the inadequacies of the SWWTP which empties marginally treated plant water into slow water which makes its way into the lake. The impact of this discharge over time has become empirically obvious leading to out of control weed growth, algae blooms and potential groundwater contamination.

Over the years our local towns and residents have expended much energy and tens of thousands of dollars to attempt to mitigate the negative effects on the lakes and surrounding environs because of problems with the SWWTP.

Of great concern is that the lake ecosystem is rapidly approaching a tipping point in its ability to assimilate the pollution coming from the SWWTP. The weeds and algae growth are warning signs that immediate and significant action is needed.

With this in mind, I request you give consideration to:

1. Ensure that the SWWTP meet the highest possible standards for discharge from the plant. That this discharge is going into a slow water stream and then into connected lakes demands the highest level of performance from the plant.

2. We are running out of time. The SWWTP has been operating for at least the past 10 years with these problems on a 5 year permit. The flow drawing presented at the hearing indicates a target completion date of 12/2024. Given that the SWWTP has apparently not been held accountable for its performance over the past 10 years, what incentive does Spencer have to meet its own target date 6 years hence? Furthermore, What is their responsibility to clean up the mess that

they have created? What moral and or ethical justification can there be for one community's actions (or inactions) that result in harm to its neighbors?

3. The SWWTP must be held financially accountable now and during the permit process including project implementation, for the environmental impacts of plant performance, otherwise there is no incentive for Spencer to move with all immediate speed.

4. Holding the SWWTP to the highest operating standards will help protect the local aquifers that provide the water supply for our towns.

Response T1
Please see Responses to Comments C1 to C7 and K1.

U. COMMENTS SUBMITTED MARCH 27, 2018 BY LOUIS FAZEN

Comment U1
I have grown my family on South Pond over the last 37 years. Unfortunately our deep lake has become more and more polluted with chemicals, weeds and less clarity over that time. Yes, there are many reasons for that pollution but the discharge from the Spencer treatment plant is one of the main reasons.

The plant is just not capable to properly treat all the waste water coming in so there is a continuous major disparity between intake volume and treated discharge volume.

High discharge phosphorus levels is one example.

It has taken 10 years to attempt to correct the deficiencies at the Spencer Treatment Plant and yet the major problems still persist. It doesn't meet EPA standards. It is a failed system!

By publicly admitting SWTP has failed should allow for additional emergency opportunities for imperative funding at state and federal levels.

The failed treatment plant approach would allow the best chance for a Win-Win conclusion for both the town of Spencer and all the downstream inhabitants including fish, fowl and resident families.

Response U1
Please see Responses to Comments C1 to C7 and K1.

V. COMMENTS SUBMITTED MARCH 28, 2018 BY HOWARD SER

Comment V1
Hi Robin my name is Dr. Howard Ser and I live at [address redacted] Sturbridge Ma. I am a resident of South Pond and a member of QQLA. I would like to thank you and the other members of the permitting offices for holding the U.S.EPA NPDES permit hearing at the Spencer Mass Public Library on March 26, 2018.

I appreciate the information you shared with me during the intermission break. I was surprised to hear that out of the approximately 600 permits that the district I Boston office oversees that the Spencer WWTP is the only waste water treatment plant that is directly upstream of a large pristine fresh water recreational network of lakes and rivers. My question to you after this revelation was the possibility of fast tracking the SWWTP permitting, that is now eleven years overdue, in order to implement whatever the EPA DEP changes are written into the permitting. I understand that whatever changes are written takes time to become reality. Our association has raised and spent thousands of dollars in an effort to protect these valuable fresh water resources. It wouldn't take much to upset these efforts and to lose the valuable resource many have labored to protect.

I know that your task is a difficult, tedious and science based process that must be fair to all involved. Above all it should be fair to the environment that we all work to protect.

We look forward to your timely decisions concerning the SWWTP permit renewal process.

Response V1
Please see Responses C1 to C7, H5, and K1.

W. COMMENTS SUBMITTED MARCH 28, 2018 BY CONSTANCE MONTROSS

Comment W1
I have lived on South Pond in Sturbridge for 38 years- 35 in my current home. I have been a member of the QQLA and applaud their efforts to keep both North and South Ponds clean. These efforts have included frequent treatments of algae and weeds, which have proliferated in part due to the discharge from the SWWTP. This discharge has continued for years as you know.

I was encouraged by your efforts to draft a fair and timely permit.

Certainly all those whose properties are affected and who care deeply about the quality of these waters for all should be heard. I urge you and all those responsible for the permit to issue a fair permit in a timely manner. It was very disappointing to hear of the very long delays in this process.

Response W1
Please see Responses to Comments C1 to C7.

X. COMMENTS SUBMITTED MARCH 28, 2018 BY BILL SEABOURNE

Comment X1
First let me thank you for your attention to the environment and especially your help over the last 6 years working closely with QQLA. I'm sure it is a bit stressful being between Spencer, your management and QQLA.

Most important to me would be to push the lower phosphorus level suggested, impose them or lowered them if possible. Other plants meet lower levels and they don't have recreational lakes down stream as SWWTP does. And the shift to the more standard winter season/ summer season (5 - 7 month) calendar would contribute to lowering the phosphorus levels being emitted from Spencer plant.

Second on my list is the scheduled proposed by the plant, to take 6 years to meet the levels of phosphorus that will be in this permit. Spencer just had a free ride for 5 or 6 years, operating on an expired permit, surely they could have used that time wisely to move ahead on a redesign that they must have realized they were going to need to meet requirements of their next permit. And the Ground Water permit, did they think that they could operate illegally for ever! They should have that portion done by now to remove the unlined wet beds.

Now if you would Robin consider this rather personal point; I plan to have some of my ashes spread on South Pond after I die. I am 72 years old. I can't wait for ever for the improvements to occur! And I don't want my ashes to reside for ever beneath weeds super charged by the SWWTP phosphorous!!

Response X1
Please see Responses C1 to C7, K1, and R1.

Y. COMMENTS SUBMITTED MARCH 28, 2018 BY DOUG VIZARD

Comment Y1
The QQLA is gratified that the EPA has recognized the significance of the 2006 TMDL study of the lakes downstream of the SWWTP. The recognition of the advanced environmental damage was a good first step in applying appropriate EPA policy to begin the necessary mitigation.

That 2006 study is a 12-year old snapshot of the lakes, which attests to the cumulative and ongoing advanced lake eutrophication. At that time, shore properties were largely developed and there had been much prior redevelopment of older properties with inadequate septic infrastructure. Since that time, more building of modern infrastructure adhering to the best ConComm and BOH criteria has occurred. There has been significant real estate turnover over the past decades wherein Title V upgrades have been applied. The best educational efforts and labors of our communities to mitigate nutrient load have been applied. Fertilizer regulation and public education has been in effect of more than two years. There is every reason to assume that the local residential contribution of nutrients in our lakes has not significantly increased since the 12-year old data was accrued. Unfortunately, the Mass DEP has shown no willingness to update the data that would inform us of any progress that may have occurred in nutrient load in our lakes, nor in the Sevenmile River watershed.

The recent history of SWWTP performance is documented, showing an effort to modestly mitigate nutrient discharge. It was made clear from the Mass DEP 2114 directed measures of the SWWTP monitoring wells that groundwater discharge was problematic. Operational data showed that less than half of the inflow was being fully treated and the lost volume was indeed

groundwater discharge. The monitoring well data (although inadequate) stands as the only measures made of groundwater, and suggests phosphorous concentrations that are greater than the fully treated outfall. Absent additional information, the EPA is assuming the ground discharge is similar to the outfall. We are grateful that the EPA recognizes that the application of a total nutrient emission limit must be calculated from the total volume of influent.

However, we must assume that the nutrients discharged by SWWTP are underestimated. We must assume that the combined discharge of surface and subsurface nutrients is underestimated. Any reasonable model of phosphorous retention and exchange in the wet beds and immediately down-stream would suggest a contaminated plume of many (or many hundreds) of acres. We are dismayed that MDEP is not moved to require a ground-water discharge permit that would require that the extent to which the nutrient emissions have impacted the Sevenmile River and down-stream lakes.

It is very clear that SWWTP emissions have been, are, and will continue to be constant source of nutrients. It is likely that our local community efforts have not adversely effected our lakes in recent years, but it clear that SWWTP performance has not improved and its contributed nutrients will not diminish for years according to the scheduled improvements. It was clear to all parties concerned for more than three years that SWWTP needed a serious upgrade, yet SWWTP officials claim they are only in the planning phase of an upgrade. The need for performance improvements in the SWWTP are way past due and the EPA must be much more aggressive a demanding a shortened time frame for performance upgrades.

Response Y1

MassDEP implements a water quality monitoring program in the Commonwealth that recognizes the need for, and resource challenges associated with, monitoring to assess the effectiveness of TMDL implementation. *A Strategy for Monitoring and Assessing the Quality of Massachusetts' Waters to Support Multiple Water Resource Management Objectives*, at 27-29, 32 (MassDEP 2018) (hereinafter, "2016-2025 Monitoring Strategy"). One way that the agency leverages resources to achieve such monitoring is by partnering with citizen watershed groups to collect data meeting appropriate criteria. *Id.* at 2, 31-32, 35, 40. If QQLA has not already done so, it might consider teaming up with MassDEP to collect monitoring data for the lakes to assess progress associated with efforts to reduce nutrient inputs to the lakes.

Please also see Responses C1 to C7, K1, and R1.

Z. COMMENTS SUBMITTED MARCH 28, 2018 BY JOHN VACON

Comment Z1

I am very concerned about the weed and algae that forms from pollutants that enter south pond through North Pond.

Response Z1

EPA shares your concerns about nutrient enrichment to South Pond (aka Quacumquasit Pond). Excessive growth of algae and invasive aquatic plants diminishes the value of a pond to abutters and the public. While it is not clear that the Spencer WWTP is the dominant contributor of phosphorus to South Pond, it is a contributor. In part for this reason, EPA has included phosphorus concentration limits in the Final Permit that are among the most protective in Massachusetts. Please also see Responses C1 to C7.

AA. COMMENTS SUBMITTED MARCH 28, 2018 BY MEG NOYES

Comment AA1

I just want to re-emphasize that the South pond is the only trophy brown trout lake in MA. Quaboag is directly downstream of a plant discharging into the Seven Mile River (as planned) and deserves EPA "gold book" treatment with the lowest possible phosphorus.

We are the only lakes downstream of a WWTP in MA.

Here is a copy of my statement which I failed to leave.

My name is Meg Noyes from the Quaboag Quacumquasit Lake Association. I will to introduce the work of organization [sic], then you will hear from the water Consulting firm ESS. They conducted testing of the waters downstream from the treatment plan [sic] for us. Finally, legal issues presented by our lawyer Jamie Vander Salm,

Donald R. Taft, resident of Brookfield, QQLA BOD member is a co author of this presentation

As member of QQLA for 12 years and board member I speak for a non profit representative organization of 200 families in the watershed who have had an interest in seeing improvements of the SWWTP. This has been for the last 25 years.

However, I should make it perfectly clear that I not only represent QQLA, I speak in part for the communities of Brookfield, East Brookfield, Sturbridge. I also speak for the concerns of those who live, work and play downstream from this facility. We also want to express the concerns we have about economic impact of the facility.

There are other community leaders here to express their own viewpoints. They have all written letters of support which you have received.

On behalf of, QQLA would like to thank the US EPA and MA DEP for holding this public meeting/hearing as required.

The QQLA mission is the protection of the environment, waterways, streams, rivers, wetlands and lakes, just as suggested and mandated by the 1972 Clean Water Act provisions.

We are concerned for the economic and recreational impacts of the SWWTP on lakes and streams, not to mention the protection of East Brookfield and Brookfield Public Water Source wells.

Quaboag (North) and Quacumquasit (South) Ponds are directly downstream from the SWWTP discharge, these two bodies of water are prime recreational bodies of water that are prized warm water and cold water fisheries.

The lakes provide swimming, boating, kayaking, canoeing, and a general enjoyment as a natural resource and environmental treasure. The watershed which numerous species of very special flora and fauna. Including the 2 species of bittern, largest US concentration of very rare Long's bulrush.

The deteriorating water quality has an effect on the economic value of land, waterways, and individuals. And the biggest source of the problem is phosphorus.

We are all collectively responsible.

So what has QQLA done to limit phosphorus in the watershed?

In the non source point area addressed

- Getting ban on phosphates in dishwashing detergents
- Education to limit phosphorus in lawn fertilizers
- Supporting town efforts Title V septic system replacements,
- Secured 319 grants to deal with run off and contaminating infiltration into our waterways,
- Provide trash services at both ponds/ beaches/boat ramps,
- Paid for fall winter and spring coverage of boat ramps with porta potties.
- Hold spring cleanup days,
- Preservation of shoreline trees and vegetation

All this happened thru study fundraising and implementation costing 1000's of hours by hundreds of people.

Throughout our 25 year involvement we have spoken out to improve the SWWTP' [sic]

It is a large point source discharge of contaminants, pollutants and high nutrient load especially phosphorus.

Annually we spend $12,500 dollars to deal with the growth of invasive aquatic plants. The number is small compared to what needs to be dedicated year after year in order to help fend off these plants. That figure doesn't even come close to what it might cost (millions of dollars) to dredge North Pond or funding ($500,000) to provide an alum treatment of South Pond.

In closing I would like to thank the EPA and the NPDES for using our many suggestion [sic]. We applaud the complete reengineering of the plant that answers the entire problem we have documented.

- Please make the process of build out of this new plant happen in the most expeditious time frame possible
- Please allow for annual public information and time for questions so we can follow the timely progress of the plants
- Please recognize the hard work of hundreds of people and minimize the cumulative damage that has been done to lakes
- Help us improve the quality of treasured lakes that benefit a whole community of users.

Response AA1
Please see Responses C1 to C7, H5, J1, and K1.

BB. COMMENTS SUBMITTED MARCH 27, 2018 BY SHEILA GOODWIN

Comment BB1
We are residents on South Pond in Sturbridge.

We are members of QQLA and are Very concerned about the adverse effects that the Spencer Waste Water Treatment Plant (SWWTP) has on our South Pond as well as North Pond and the entire associated watershed.

We want to stress the importance of getting SWWTP in compliance. We are very frustrated with how long the EPA is taking to correct known violations at SWWTP. SWWTP has had 10 years of operation on a 5 year permit.

We have continually donated and raised funds to control the weeds caused by high phosphorus dumped into the watershed by SWWTP. It is not acceptable for Spencer to claim "financial hardships" at the cost of our water quality. Members of QQLA have had to hire a lawyer which would not have been necessary if the EPA was doing their job properly.

We have seen firsthand algae blooms and the continual increase of invasive weeds. We sit on our deck and smell the rancid order [sic] of decaying matter while Spencer continues to dump into Seven Mile River.

The EPA is not fulfilling their responsibilities.

We feel it is important so we are recapping the points presented by our lawyer at the recent meeting.

The Proposed New Phosphorus Limits Must Be Lower to Comply with the Facility's TMDL Wasteload Allocation.

The Growing Season Phosphorus Limit Should Apply for Seven Months.

The Timeline for Compliance with the Proposed New Phosphorus Limits is Unreasonably Long.

The Phosphorus Timeline Should Be More Specific.

The Phosphorus Timeline Should Require Both a Detailed Annual Progress Report and an Annual Public Presentation Regarding the Town's Progress. The Agencies Should Appoint a Third-Party Reviewer of the Town's Progress.

There Should Be Specified Consequences for Failing to Comply with the Phosphorus Timeline.

We realize the tone our letter is not pleasant but we are frustrated, fed up and angry that the EPA has allowed and continues to allow the SWWTP to operate in such a deplorable manner. We never thought this type of pollution would be allowed by the EPA in this day and age!

The deposition of phosphorus in the sediment is cumulative and will take **thousands of dollars** to mitigate.

Please include our email/letter in the others from our fellow QQLA members and concerned neighbors.

Response BB1
Please see Responses C1 to C7, I1, and K1.

CC. COMMENTS SUBMITTED MARCH 28, 2018 BY MARITA TASSE

Comment CC1
I'm writing as a QQLA member and a resident downstream of the SWWTP. Thank you for your thorough presentation at the meeting on Mar 26 in Spencer and the opportunity to share our thoughts and comments. Along with the points discussed by Jamie and Carl for QQLA's position, I would like to emphasize the urgency of prompt design and implementation of the tightest possible standards for the SWWTP for the sake of the rivers and lakes downstream. And, it's imperative that EPA enforces the 7 month growing season standard (April 1 to October 1 for phosphorus removal. That should be a significant plus for the environment with minimal inconvenience and cost to the SWWTP.

You, especially, are aware of the local community's and QQLA's long term efforts to work diligently for the best possible ecology and health for our lakes and environment.

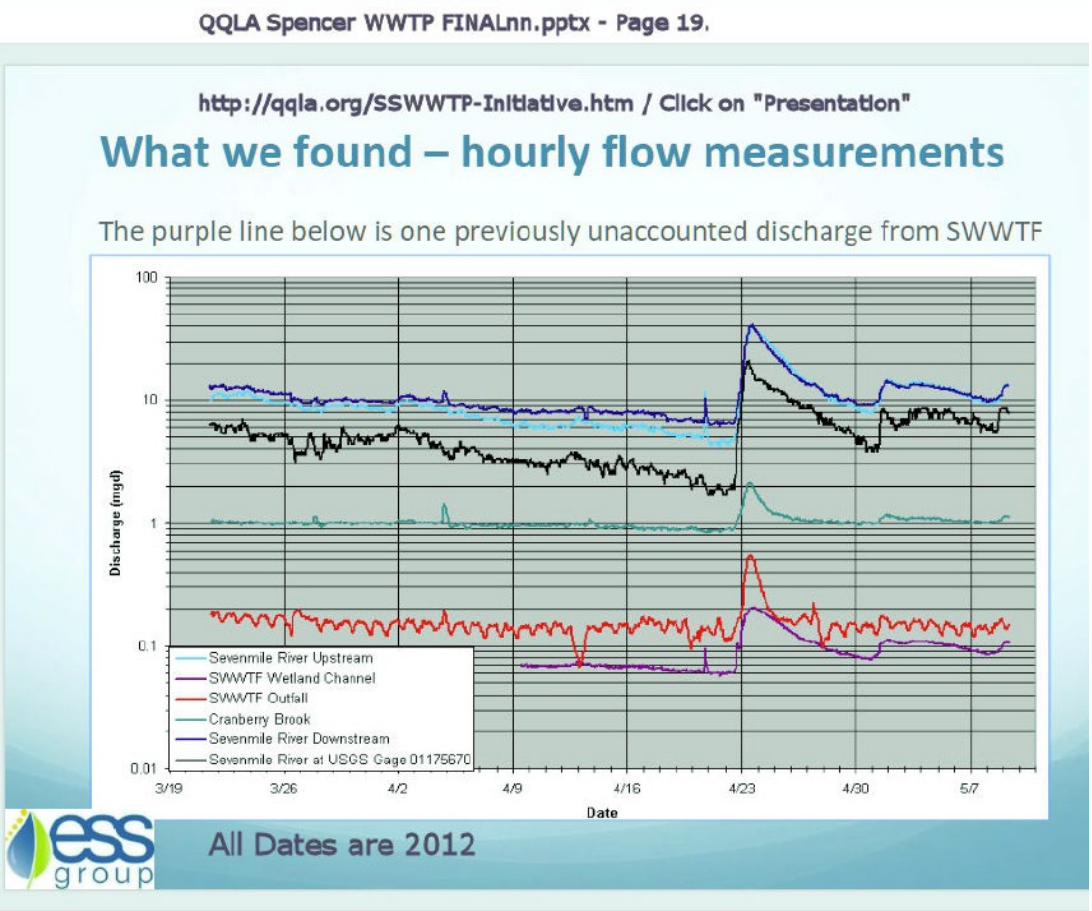
We have borne great expense in our efforts - both to stay on top of mapping and treating the weeds, also algae - plus hiring professionals to guide us scientifically and legally because the optimum results are so important to all residents in the area and the future of our resources. We realize costs are always a factor, but doing less than the best while upgrading the SWWTP would be sadly shortsighted considering the long term effects.

Response CC1
Please see Responses C1 to C7 and K1.

DD. COMMENTS SUBMITTED MARCH 28, 2018 BY RANDY WEISS

Comment DD1. Storm Water Infiltration.
It is my understanding that the term 'infiltration' in this context describes the entrance of water (often storm run off) into the sewer system. Utilizing data from the USGS river gauge on the 7 Mile River (Gauge # 01175670) and comparing data for the months of March, April and May 2012 with the data collected by the ESS group for our lake association (QQLA), it is obvious that a heavy rain causes the outflow of the 'plant' to increase in proportion to the rain fall. The ESS presentation can be found on the QQLA website (QQLA.org) at *http://qqla.org/SSWWTP-Initiative.htm* - the link is labelled "Presentation".

It is not my intention to introduce the entire ESS presentation, however there is one page (#19) that is pertinent. This is presented here:



Review:
Red line = SWWTP Outfall.
Black Line = Stream Flow condition upstream of the plant (USGS gauge).
It is clear that the 4/23 rainfall event caused the plant outfall to increase from about .15 MGD to about .55 MGD... a factor of almost 4 to 1.

Response DD1

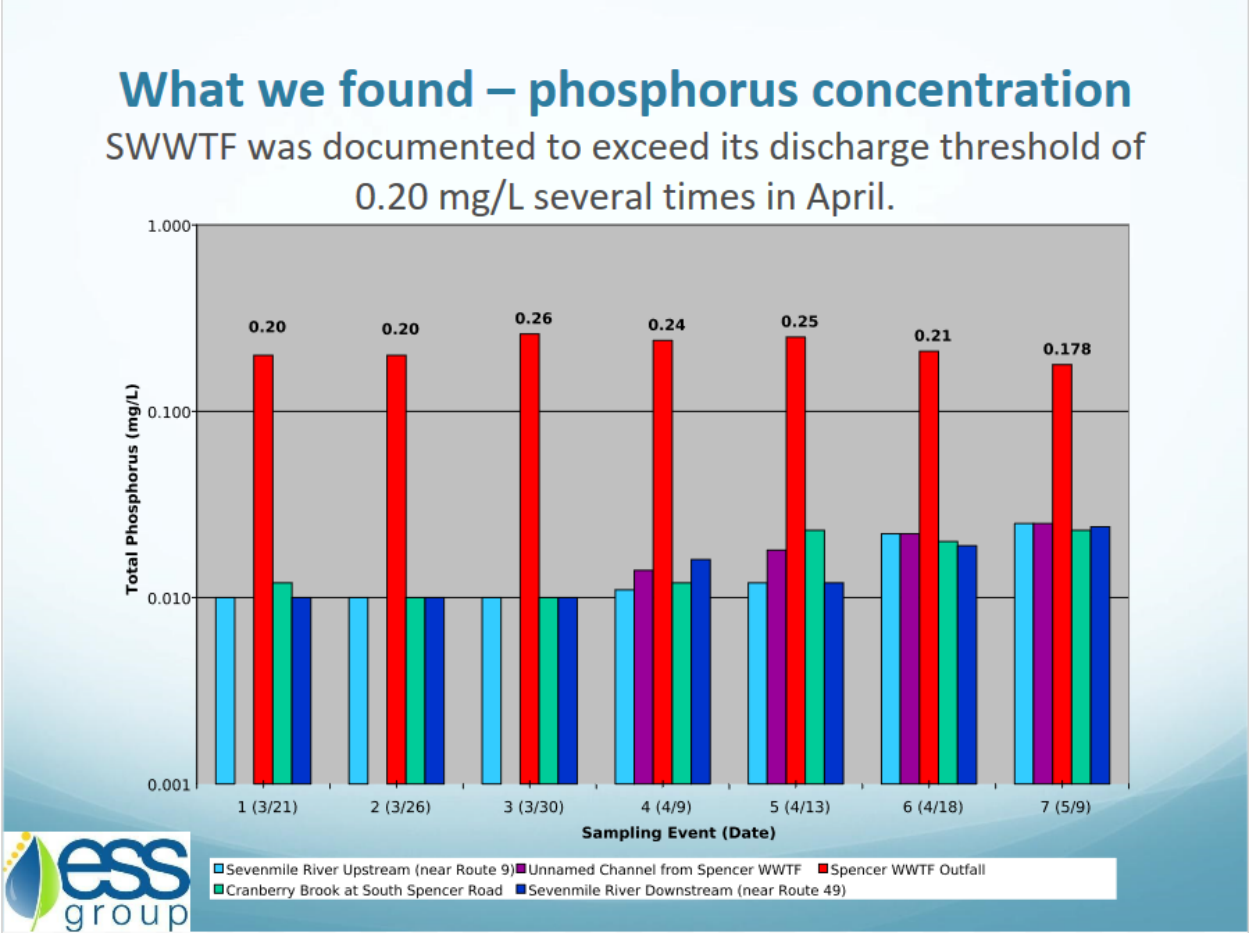
The effect described in the comment is known as Inflow & Infiltration (I/I). Inflow occurs when illegal cross connections (e.g. sump pumps, roof leaders) bring stormwater into the sewer system. Infiltration is shallow groundwater or stormwater that enters the sewer system during wet weather. Due to the age of infrastructure in Massachusetts, it is extremely common for sewer systems in Massachusetts to have physical defects that allow stormwater to enter the pipes.

For the past 20 or more years, NPDES permits for POTWs in Massachusetts have included I/I management requirements. The Final Permit includes updated Collection System Operations and Management (O&M) Requirements (Part I.D.) that, in addition to requirements to reduce I/I, also require mapping of the sewer system and the creation of a Collection System O&M plan that allows the Town to plan for routine maintenance.

Additionally, MassDEP regulations at 314 CMR 12.04(2) require that all sewer authorities develop and implement an ongoing plan to control I/I, and required sewer authorities to complete an I/I Analysis of the sewer system and submit a report to MassDEP by December 31, 2017. MassDEP allowed sewer authorities to request an extension on submitting these reports and Spencer was one of the sewer authorities that was granted an extension. As such, Spencer was required to submit this plan to MassDEP by December 31, 2018, and Spencer met that deadline. Furthermore, as discussed in Response E11, the Town is engaged in an upgrade of its sewer system as a precursor to the upgrades of the WWTP.

Comment DD2. Phosphorus Levels.
Another page of the ESS report (Page 21) shows the results of several assays of samples from the waters around the plant. Two main conclusions can be drawn from this data: A) The phosphorus levels of the plant's output are ABOVE the permit limit (and way above the TMDL limits).

B) The question of whether APRIL should be in the Winter or Summer control group is addressed: namely the April readings of the SURROUNDING waters show phosphorus increasing - implying that the time to REDUCE the plants output corresponds with this timing, ie. APRIL.



Response DD2

The reference to page 21 in the comment is to the QQLA presentation rather than the ESS Report. This claim has been made previously to MassDEP, and the agencies direct the commenter to MassDEP's earlier response:

> *At the meeting we discussed your presentation regarding SWWTP's noncompliance with phosphorus limits. On page 20* [sic] *of the presentation you state that the permittee "exceeded its discharge threshold of 0.20 mg/L several times in April" (2012) based on grab samples that ESS took from the SWWTP outfall. As discussed during the meeting, SWWTP's NPDES permit allows for a phosphorus average monthly limit of 0.3 mg/I (not 0.2 mg/I) through 24-hour composite samples (not grab samples) obtained at a frequency of 1/week from November 1 to April 30. Contrary to the conclusions drawn in the ESS Report, MassDEP has not found SWWTP to be in violation of its NPDES permit during the time periods noted in the Report. The presentation should be corrected to accurately reflect SWWTP's compliance status for phosphorus during this time period.*

In addition, the claim that the page in the presentation shows that levels are "way above the TMDL limits" is unsupported. The TMDL does not contain "limits" *per se*, although it does include a waste load allocation ("WLA") for the Spencer WWTP. This WLA, however, is expressed as a mass, not a concentration. The page referenced in the comment, however, portrays concentration data, not mass data. Thus, the referenced page does not support the statement that "phosphorus levels of the plant's output are . . . way above the TMDL limits." In any event, the Final Permit establishes phosphorus limits for the facility that are more stringent than those in the 2007 permit, and the facility will need to undergo an upgrade to achieve those limits. FS at 25.

Regarding the seasonal phosphorus limit, please see Response C2.

Comment DD3. Blue Green Algae Bloom

As I mentioned at the Public Hearing on Monday 3/26/18, the Blue-Green Algae blooms have been much worse in the last 6 years or so than anyone can recall. Many prior years (before 2000) have seen no such blooms (as per many observations over decades by local residents). In September, 2012 there was a massive algae bloom. This was noted in the Worcester Telegram and Gazette:

=== Telegram and Gazette Begin ===
From the Worcester Telegram and Gazette Wednesday, September 12, 2012
Algae bloom turns Quaboag Pond green with toxicity risk
By Bradford L. Miner TELEGRAM & GAZETTE STAFF
BROOKFIELD — Quaboag Pond, home of record northern pike, languished in the morning sun today like a bowl of lukewarm pea soup.

=== Telegram and Gazette END ===

They had an accompanying photo: "POND CLOSED" sign placed on the Quaboag Boat ramp.

Here are three of the photos taken that same week from my shoreline: [Redacted]

NOTE that the Mass Department of Public Health contacted us, and several of our neighbors in concern that our water wells might be contaminated by this toxic algae bloom. They did send out agents who took samples. Notices were placed on posts and trees in our neighborhood to avoid water contact - and prevent pets from drinking the lake water. Several local residents were somewhat terrified by this outcome.

NOTE: the well samples showed no toxic contamination.

Response DD3:
The comment included four photographs, which the agencies have not reproduced in this Response to Comments but have included in the administrative record for the permit proceeding.

Blue-green algae (aka cyanobacteria) are naturally present in fresh waters but may grow rapidly during warm weather to form cyanobacterial harmful algal blooms (cyanoHABs). Several factors contribute to cyanoHABs, including nutrient availability, light availability, water temperature, pH changes, water stagnation, and vertical mixing. Rising temperatures and changing rainfall patterns associated with anthropogenic climate change have made cyanoHABs more common.

The Final Permit dramatically reduces the allowable nutrient loading from the Spencer WWTP, which should make cyanoHABs on Quaboag Pond less likely. However, if an individual observes a potential cyanoHAB, they should avoid contact with the water and report the observation to their local health department. The local health department will then contact the appropriate state agencies to arrange for further testing and issue advisories as needed.

Comment DD4. Request for Action:
The above three items of 'comment' indicate the degree to which the SWWTP has violated its prior permit limits, and one dramatic adverse result therefrom. It is my request that the proposed permit now under consideration be such that these violation of limits be prevented, and thereby preventing the adverse effects seen downstream from the plant. NOTE: Lake Quaboag (and our sister lake, Quacumquasit) are the ONLY lakes in the commonwealth that lie downstream from a Waste Water Treatment Plant.

Response DD5:
As discussed above, the Final Permit includes more stringent limits to reduce the phosphorus load to the ponds from the Spencer WWTP, which should also make cyanoHABs less likely, and conditions to address I/I. *See* Responses DD1 to DD3. With respect to enforcement, please see Response E6. Note that, contrary to the comment,

several impoundments and lakes in Massachusetts receive POTW discharges. Some examples are listed in Response H5.

EE. COMMENTS SUBMITTED MARCH 27, 2018 BY CURTIS FAZEN

Comment EE1
In 2007, I completed my Master's Thesis in Environmental History about South Pond through Northeastern University.

My thesis was 5 chapters and covered all parts of the lakes history including the environmental degradation and the movement to protect them.

If the EPA would like a copy of my thesis, I would be happy to send a digital or paper copy.

We all benefit by protecting the lakes.

Response EE1
Please see Responses C1 to C7 and K1.

FF. PUBLIC HEARING COMMENTS – MARCH 26, 2018

Comment FF1 - Kevin Olson
MR. OLSON: Thank you everybody. Good to be here tonight. Kevin Olson, Senior Project Manager with Wright Pierce. We are a consulting engineer working with the Town. We've been working with the Town for several decades I think actually. So, we continue to work with them now as part of the permitting review process.

So, I did get a chance to speak at the meeting before. So, I'll shorten up a couple of things that I did want to say. But, I just wanted to say first and foremost, ourselves and the Town have appreciated the work that EPA and DEP have done with us to date to get to this point of the Draft Permit. So, it's good to see that we're actually at this point right now.

EPA's aware that the Town will be submitting its written comments tomorrow. Robin is aware of that. And we actually will make some comment on the dates that are proposed in the Draft Permit as well and some of the interim dates in particular. So, those are forthcoming.

A couple of big picture comments that I'd like to make on behalf of the Town. The Town has done a lot of work over the last several decades, like I mentioned, at the treatment plant as well as in the collection system. And they've tried to really be good stewards for the environment, but also do the best job they can for the sewer users. So, this is really just kind of a next step in that process.

The NPDES permit, I think, everybody knows is really going to drive some of that work. There are some needs at the plant now. But, with the permit itself, we talked about some of those metrics earlier.

Phosphorous is one of them. And I did mention there is a handout. Again, I'll mention it now that we're on the record. If you don't have it, I think, there might still be some copies there. So, feel free to take a look at that. I'll talk a little bit more about that in a minute.

The Town is doing some other things right now as well as reviewing the Draft Permit. They're working on its comprehensive wastewater management plan right now. And that will help really set the road map for the next 20 years. What are they going to do with their collection system? What are they going to do with their plant? So, everything is going to get wrapped into that, into one nice document.

And then, right at the very end of the public meeting, I didn't get a chance to say that, when that is complete, there will be a public hearing and meeting as a requirement of that. So, I just wanted to make that comment to you that there will be an opportunity to actually comment on that as well.

The CWMP is in three phases. The first phase is more or less complete at this point and moving into phase 2. Our intended schedule is to have phase 3, the final phase, completed in October of this year. So, right around that time would be the likely time we'd schedule the public meeting and hearing on that.

The Town is also working on its I/I control plan right now, infiltration and inflow, I/I. It's DEP required. They have a time extension to complete that. All municipal sewer communities were supposed to have that completed by the end of last year if you didn't have a time extension. The Town does, so that will get completed by the end of this year.

Really, I'm bringing that up more to tell you that, after you do the infiltration and inflow program, they'll move into the next phase, which is sewer system evaluation survey, where you try to further identify some issues with it in collection system. And more salient to tonight's point is ultimately move into some sewer rehab as needed to be able to reduce infiltration and inflow, which would have a positive effect on the collection system as well as the plant in terms of a flow standpoint. So, again, the Town is doing a lot of really good work.

To the handout, and my last point that I'll make, again, take a look at this. In black, the process flow diagram is the existing treatment facility. And then, in red and in green, lays out a number of things. Again, we don't have all of the details for you tonight. Give us a little bit more time and we'll have a better feel for how the Town plans to get permit compliant.

But, there are a number of things that have already been talked about tonight, phosphorous being one of them. It's likely that they're going to add on a tertiary phosphorous system to get from that seasonal 0.2 down to that seasonal 0.1.

A couple of other things, the wetland basins that were mentioned earlier we are looking at, and the Town is considering, eliminating those basins. You know, we talked about, you know, the fact that there's some flow that's being lost there. We are looking at relocating the outfall from the Cranberry to the Sevenmile River. That's also part of what we're looking at right now.

There's some other items in here that we're looking at. Total nitrogen, it's a report only for this permit cycle. So, there is no numerical limit. We know that, but we, as the Town's engineer, need to take a look ahead and say could that be coming in a future permit cycle. So, we're going to look at that as well.

And as part of making upgrades to meet the current pending permit here, you know, what about nitrogen in the future. So, we're going to keep that future in mind.

A couple of other things I just wanted to leave you guys with. In closing, the Town -- you know, there's a lot of work to be done here. And there's a lot of variables. I know that people might have their certain opinions on when this should be completed. But, the Town is aware that the end game for permit compliance as written in the draft is the end of 2024.

So that is right now what the Town is looking at as a potential treatment plant upgrade and being permit compliant. But, again, the Town will comment on those interim milestones as well.

So, I think, I've covered it. I don't want to get the hook here. I wanted to stay within five. So, hopefully, I did.

Response FF1
The comment is noted for the record.

Comment FF2 - Meg Noyes
MS. NOYES: Thank you. Hi. My name is Meg Noyes and I'm from the Quabog and Quacumquasit Lake Association. And I'm going to introduce the work of the organization. Then, you'll hear about our water consulting firm, ESS. They conducted testing of the waters downstream of the plant for us. And finally, our legal issues by our lawyer, Jaime Vander Salm.

Don R. Taft, resident of Brookfield, has worked with me on this presentation and is a presenter of this comment. He and I are members of the board for 12 years. And we're a non profit representative organization of about 200 families in the watershed that have an interest in seeing improvements in the Spencer Wastewater Treatment Plant. This has been over 25 years.

I'd like to make it perfectly clear that we also represent part of the towns of Sturbridge, East Brookfield and Brookfield who have interest also in seeing improvements. And they have written letters which I think you've gotten. And you'll also probably hear other people who want to express opinions, their own viewpoints.

We have concerns about the economic impact of the wastewater treatment plant. And I'd like to thank DEP and EPA for holding this required meeting and hearing.

Our mission is the protection of the environment, waterways, streams, rivers, wetlands and lakes as suggested by the 1972 Clean Water Act. We are concerned with the economic and recreational impacts of the Spencer Wastewater Treatment Plant on the lakes and streams, not to mention the protection of East Brookfield and Brookfield's public water source wells.

Quabog, North Pond and Quacumquasit, South Pond are directly downstream from the wastewater treatment plant. These bodies of waters are prime recreational water that are prized for both their warm water and cold water fisheries. The lakes also provide swimming, boating, kayaking, canoeing and a general enjoyment of this treasured resource. They also contain special flora and fauna, two different species of bittern and the largest US concentration of the rare kings bulrush.

There's deteriorating water quality and it has an effect on the value of the land for water waste and the individuals. And we're all collectively responsible. And phosphorous is the biggest problem.

So, what has QQLA done to limit phosphorous in the watershed. We helped with the implementation of the ban on phosphates in dishwashing and washing machine detergents. We have educated the public to limit the phosphorous in lawn fertilizers. We've supported the Town's efforts in Title 5 septic system replacements. We've secured 319 grants to deal with the runoff and contaminating infiltration of our waterways. We provide trash services at both ponds, beaches and boat ramps. We paid for fall and spring coverage of boat ramps with porta potties. We hold spring clean up dates. And we urge the preservation of shore trees and vegetation.

And this has happened through steady fund-raising, education and implementing costs and thousands of hours by hundreds of volunteers.

Spencer Wastewater Treatment Plant is a large point source discharge of contaminants, pollutants and high nutrient load phosphorous. Annually, we spend $12,500 to deal with the growth of invasive aquatic plants. The number is small compared to what needs to be dedicated each year after year in order to fend off these plants. That figure doesn't come close to what it might cost, in the millions, to dredge North Pond or to provide an alum treatment, about a half a million for South Pond.

In closing, I'd like to thank the DEP and the EPA for listening to our suggestions. We applaud the complete re-engineering of the plant that answers the entire problem which we've documented. But, we want to please make the process of the build up of the new plant happen in the most expeditious time frame possible. Please allow for annual public information and time for questions so we can follow the timely progress of the treatment plant's building.

Please recognize the hard work of hundreds of people and minimize the cumulative damage that's been done to our lakes. Help us improve the quality of the treasured lakes that benefit a whole community of users. Thank you.

Response FF2
Please see Responses C1 to C7, K1, and AA1.

Comment FF3 Carl D. Nielsen
MR. NIELSEN: Thank you very much. So, I'm a certified lake manager. I've been working for over 20 years with QQLA. And I've been working in lake management for over 27 years.

My experience with QQLA goes back further than that. I grew up on the lakes. I recall what they used to look like before excessive phosphorous loading had occurred.

Phosphorous, as we've all talked about, is the significant source of nutrient to the lake. It's the critical one that causes the algae blooms. Those algae blooms settle to the bottom of the lake each year and result in internal recycling within the lake.

That internal recycling adds each year an additional load to that pond. And over 20, 30 years, what's happened is, the phosphorous has inched up. When I was a kid, phosphorous in the lake was .015. Now, it's .2 in South Pond. North Pond is .4 -- .04. Sorry. So what's happened is, over time, that phosphorous has inched up and now algae blooms are more common in South Pond. They happen annually in North Pond.

QQLA has fought to combat those algae blooms with treatments to keep the water swimmable each summer. And my company, ESS, has worked to help them do that each year by monitoring and implementing those programs.

Over nearly 30 years ago, QQLA put in or worked to put in a gate between the two ponds. That gate was designed to keep phosphorous out of South Pond which has a one a half to two year flushing rate. That slow flushing rate means that every time there's a big storm in the watershed and a back flow of water, that water comes with nutrients that flush into South Pond and add to that internal recycling load.

And it takes two years for that water to flush itself out. So, if you get a back flow every year, you're going to just gain phosphorous over time. And that's what been happening.

The North Pond has a very slow flushing rate, about 30 days to 60 days. And that slow -- I mean, fast flushing rate. Sorry. That fast flushing rate means that the nutrients that come down from the Sevenmile River into North Pond flush through the pond relatively quickly. When we get into some of the discussions later, we're going to have some very specific points that will relate to some of these facts as to how we think the permit could be improved. And Jaime is going to step up to the plate, I think, next and try to run through a few of those suggestions.

That's all I have. Thank you.

Response FF3
Please see Response K1.

Comment FF3 - James Vander Salm on behalf of QQLA
MR. VANDER SALM: Thank you. So, my name is Jaime Vander Salm and I'm the attorney for QQLA. And we've submitted written comments. And I'll just briefly go through those, some of them.

But, before I do, I'm hoping -- I understand there's no -- give and take here is not what this hearing process is about. But, I certainly hope that EPA or DEP, if there's something I'm saying that you disagree with, I hope that you'll let me know.

So, we have seven -- QQLA submitted a total of seven comments. The first of those comments, was that the proposed new phosphorous limits must be lower to comply with the facility's TMDL waste load allocation. So, the waste load allocation, as it says in the fact sheet, the waste load, the effluent limits must be consistent with the TMDL waste load allocation. So, the waste load allocations are .79 pounds per day and 1.19 pounds per day as we heard before.

If you do the math, and this is one of these areas where I hope that someone will correct me if I'm incorrect, but I think, if you do the math, and you try to figure out what effluent limit is necessary in order to ensure that the daily poundage of phosphorous is under .79, for example, in the summer, I think, if you do the math, as is done in my comment, I think what you get is actually a .09 milligrams per liter -- this is rounded off -- but, it's .09 for the summer versus the .1. And you get a .13 as opposed to the .2 for the winter.

So, you've got a difference in both. And you have a difference of the actual -- the .2 that is proposed in the Draft Permit for the winter is actually more than 50% higher than I think the waste load allocation will allow. That is to say, the 1.19 pounds per day will allow. If you're at .2 milligrams per liter, you're going to be going considerably over that 1.19, that waste load allocation.

So, I think, as a matter of law, and this is as cited in the permit, this is 40 CFR, this is the federal regulations, 40 CFR 122.4(d)(1)(7)(B). I think, as a matter of law, those have to be lower. And I understand this is, again, this is not a give and take. But, if there's something I'm saying wrong, I would invite a give and take on that point here, even though I understand there will be a response to these comments on paper.

So that's the first comment. Again, the limits by law should be no greater than .09 milligrams per liter for the growing season, and no greater than .13 milligrams per liter during the winter season.

The second comment is about the length of those seasons. As, I think, everyone here knows, the summer season, the growing season within this Spencer permit has applied and does apply in the Draft Permit. That limit for phosphorous applies for six months. That is to say from May 1st through October 31st.

And as I say in the comment, I think this is an anomaly. I have cited 20 other towns in Massachusetts here in this comment all of which have these adjusted seasonal limits for phosphorous, in other words, it's different in the winter season and the growing season. And they all employ a seven month growing season. And I don't know if there's a reason for that.

I didn't find an exception. In my own review of the permits online, I didn't find an exception to this seven month growing season, five month winter season to the break down of the year into those two periods for phosphorous purposes. So, I think, at the very least, Spencer is exceptional

in this respect in having the lower limit apply for six as opposed to seven months. And I would ask, on behalf of my client, that this permit reflect the norm, which is to divide the year into a seven and a five month period.

This is not just the norm. It also is smart because April, the month of April, again, which is now in the Spencer permit, the higher phosphorous limit applies for the month of April. The growing season is -- well, it's becoming longer. I think, what you see in these other permits actually reflects the true growing season or the increasingly true growing season which begins earlier. So, you should have the lower limit apply earlier.

You have climate change impacts, such as higher temperatures, higher water temperatures, accelerated ice off. You have things growing sooner. So, it makes sense for the permit here in Spencer to be aligned with what I believe is the norm. And I think the norm is actually an understatement. I think, almost every permit, I didn't find an exception, almost every permit uses this seven month/five month break down.

The third comment that we have submitted has to do with the length of the time line. And we were looking in the fact sheet for an explanation as to -- we, QQLA, was looking in the fact sheet for an explanation as to why these periods of time were necessary. And what we see is, there's a mention of -- there's an application for financial assistance and that takes a while. And also, this is going to be costly to the members, to the persons who pay sewer fees in town.

I think, what makes it for QQLA earlier is very important to bear in mind here. There is economic cost being imposed down the river. And to the degree that financial considerations are dictating a longer schedule, and the fact sheet more or less says that's what's happening here, I think, the agency should weigh that against the financial cost to those people downstream. And there doesn't seem to have been any -- well, there's no analysis in the fact sheet as to the cost that this is imposing on persons who live on -- I think, it's not just the people who live on these ponds, it's the people who recreate in these ponds. It's a huge group of people who suffer economic loss to the degree that their lives and their enjoyment of these resources are diminished. So, I think that's important to take into account.

In any event, I don't think it is reasonable, even if all of the financial cost of this were being borne by the tax payer or by the sewer rate payer in Spencer, you still have a situation here where I believe it's safe to say, as we have in the comments, that the town of Spencer has been an extraordinary beneficiary of -- they have been treated quite charitably by the agencies thus far. And I think that's true in several respects.

It's true because, for example, this permit is being -- we are six years beyond the point where this permit -- I understand this is normal, but still, they had an extra six years before they had to come to this point in time when they were going to be called upon to spend money on these upgrades.

It is also very important to keep in mind that, as things stand, the permit effectively licenses the Town, and has for the last 11 years, licenses the Town to exceed its waste load allocation when you do, in fact, take into consideration the water, more than half of the water that comes in that is being lost through the wetland beds. What the current permit does with the current limits in place, the .2, .3, it ignores that water, and thereby, has given the Town a huge break in ignoring a large percentage of the pollution that is coming from the facility.

And I do think it's worth remembering this discharge to groundwater is actually illegal. I don't think that's in question. It violations Massachusetts regulations at 314 CMR. They need a groundwater discharge permit to do this. They've been violating this for decades. For decades. And there's been no price to pay.

I believe this also violates federal law. Increasingly, the case law says that you do, in fact, need a federal clean water discharge permit if you discharge to groundwater and it then comes out into surface waters, which is what we -- I think we have here with respect to this water coming out into Cranberry River and/or Sevenmile River.

The point is, the Town has received very generous treatment. Its violations of law, both federal and state, certainly state, have been tolerated. This permit is six years late in coming. This permit has licensed them to exceed the waste load allocation that is established in the TMDL report.

For all of those reasons, the agency should say no, we're going to insist that they move diligently and expeditiously in their design and execution of these upgrades.

Number four, and I know I'm a bit over my five minutes here, so I'll be brief. The fourth comment, I think, in several respects, the permit time line for the phosphorous limits is problematic in that it is not sufficiently specific, specifically, in three respects. Part 1(b)(2)(B) states that the Town shall, “complete a conceptual design to meet the total phosphorous limit by December 31, 2018”. And QQLA requests that it be specified that they complete a 25 percent conceptual design to meet the total phosphorous limit, that the actual kind of conceptual design, the degree of design, that that be specified. I think, otherwise, you're going to have a disagreement which will be bad for all parties and all agencies later on as to what that means.

The same thing for part 1(b)(2)(C) of the phosphorous time line which says that, no later than July 31, 2020, the Town shall, complete design plans and specifications for necessary upgrades." QQLA requests that this be amended so that it reads, complete design plans and specifications for necessary upgrades and obtain all permits required to perform such upgrades. There's nothing in the time line about acquiring permits. And I think that is going -- that lack of specificity is problematic and will cause disagreement later on as well.

Thirdly, I'm not sure if this is -- I'm not sure if this was an omission or not on DEP's part, on the agency's part, but part 1(b)(2)(E) of the permit, of the Draft Permit, says, "the Town shall attain compliance with the final effluent limits for phosphorous by December 31, 2024." It doesn't say

that they must complete construction of necessary upgrades including removal of the constructed wetlands which is what QQLA would suggest.

The fact sheet does say that it is -- as has been said here today, I think, by Robin or one of the speakers, it is understood that upgrades to the facility will include removal of the constructed wetlands. And I don't know what that understanding is worth in terms of its legal effect. If it just exists in the fact sheet, I don't think it's worth much in terms of binding them legally. And I understand the premise here tonight seems to have been that that is not, in fact, binding, that this is potential, and that that's not being required.

Certainly, if that is something that the agencies want to require, it should be there right there in that time line in the permit as opposed to just a suggestion in the fact sheet. QQLA would certainly urge the agencies to put that requirement that they actually, by that date, remove the constructed wetlands, that that be put in the actual permit. Because we don't really know what's happened. As has been discussed tonight, we don't really know what's happening with the water that's getting through there in terms of its phosphorous content or anything else.

And it's illegal. It's illegal. And that's not, I think, arguable. It certainly violates state law for them to be discharging to groundwater without a permit. So, those are three suggestions as to greater specificity in the time line.

The last three requests are comments that QQLA made that have to do with, when looking at this permit, and I know it resembles a lot of these permits, but one is struck by the lack of provisions that are aimed at ensuring that the Town will comply. So, I think, it's important, and this was alluded to by one of the speakers earlier, I think, it's extremely important that there's an annual report, for example, that is -- it says that each year, by December 31st, the Town shall submit an annual report summarizing what it has done for the previous year to EPA and Mass DEP. I think, that language is very weak, summarized. So, at the very least, I would hope that the actual time line would insist on a detailed as opposed to a summary report, and actually set forth the types of detail that are going to be required.

This sort of transparency, I think, will be good for everyone. It will put greater pressure on the Town to actually act. It will enable concerned citizens and the agencies to know exactly what's happening if language such as the following is included; the annual report shall include -- this is just a proposal, but I would hope that something approximating this would be included in the permit -- the annual report shall include, without limitation, a registered professional engineer's detailed description of all planning design and construction activities performed or scheduled to be performed during the past or subsequent calendar year, dates during which such activities have been performed or are scheduled to be performed shall be specified. Any problems or delays encountered or anticipated in the performance of such activities shall be explained in detail. The annual report shall be made available to the public through the Town's website simultaneously with its submission to EPA and DEP.

I think, this is very important for this permit to spell out exactly -- to make that annual report useful. I think, it's a very useful tool for transparency. But, in order to make it -- to maximize its usefulness, I think, it's very important that it specify what kind of -- that it specified detail and it specified what kind of detail should be included.

QQLA would also suggest that there should be a live public presentation required. And I understand, again, this may not be normal for a permit, but perhaps it should be, that there be a forum like this at which the Town, after having submitted its annual report, and what we propose is that next February, that there be a meeting at which the author of that report present to the public and answer questions from the public regarding what has happened for the previous year and what is planned for the next year.

Again, I think, in the long run, this will be beneficial for all parties, this kind of -- for the public to be informed, for the agencies to be informed and for the public to have opportunities to actually ask questions and express concerns about the progress that the Town is or is not making.

I would also suggest that a third party reviewer would be useful here to keep the Town honest and to ensure that it's taking these requirements -- that it's moving along quickly and that it's moving along intelligently, both with respect to its designs and its construction of upgrades.

Lastly, in some of the general NPDES permits, you see a language about enforcement. You'll see language, for example, in the construction general permit. Any violation of this permit is a violation of the Clean Water Act for which you can be fined, up to this amount, 50 some thousand dollars per day per violation. I think, it's important to have a paragraph like that in the permit. I don't think there is one that actually sets forth -- that serves to give the Town a clear advanced warning that there actually will be enforcement consequences, and ideally, what those enforcement consequences will be.

Obviously, there can be fines. But, I still think it's important to actually say that in the permit. I think, the Town has had a lot of experience with the law not being enforced against them. And I think, it is safe to assume the Town may have become accustomed to thinking that these deadlines and the terms of this permit will not be very vigorously enforced against them. And I think, a statement will be useful about the agency's intention to hold the Town to these deadlines, for example, and also, what the agencies will do concretely. So, for example, it might say, if you fail to meet these deadlines, the agencies intend to take enforcement action, and this enforcement action may include, aside from fines, it may include a ban on the receipt of further transported septage or other waste from entities that are not connected to the sewer system. Or perhaps, a freeze on further connections. The type of enforcement actions that agencies do tend to take against wastewater treatment plants that are recalcitrant or that are violating the terms of their permits.

It would seem very useful to spell that out right here. Certainly, the Town is not going to be able to come back later, if it becomes tardy or recalcitrant, it will not be able to come back later and say that it did not anticipate that these types of things would be the consequences.

Again, all of this is written in some greater detail in these comments. And on behalf of my client, we really appreciate the time that you're spending this evening, and also the time that you have spent communicating with them. In particular, Robin, they really appreciate the consideration that you have shown them in recent years. So, thank you.

Response FF4
Please see Responses C1 to C7, which address QQLA's written comments.

Comment FF5 -Randy Weiss
MR. WEISS: My name is Randy Weiss and I'm an East Brookfield resident. I live on Red Gable Road on North Pond. And I've two comments. The first is a technical one. It's pretty clear from the reports that this Spencer Wastewater Treatment Plant has put out -- if they're compared with the US geological survey gauge of the river that's upstream from the plant, that when there's heavy rains, the outflow from the plant increases dramatically. And this is easy to see from comparing those two sites.

So, it's clear, although there's no direct proof, there's no physical evidence of where the pipes are, that the storm drains are somehow flowing into the wastewater treatment plant. And this is a problem for any wastewater treatment plant. Except, if there's a major overflow, it does not affect the people in Spencer. The more of an overflow, it will go down the Sevenmile River a mile and a half. It will go under the bridge along Shore Road into North Pond. And it will be at my house, because there are no houses along the river and I'm the first house on the pond.

And that's my first comment. My second comment is a more emotional one and that is, that when the previous owner of our house lived there, there was never a blue algae, blue green algae bloom. And in the first half of the time that my wife and I have lived there, there wasn't one.

But, the amount of phosphorous has increased. And there was a significant bloom there. Now, it's a bloom almost every year. There was a significant blue green algae bloom about five or six years ago. And it's well on the record, the algae was not just on the surface, but it looked like little loaves of bread floating on the surface. And it was so severe that, I think -- I believe, it was the Massachusetts Department of Health that tested 10 or 15 wells, including ours, because once again, the phosphorous comes down the river and it comes to me.

And it was terrifying for all my neighbors, my wife and I. We were afraid our dog would drink the water. There was a warning placed on all the trees. And this was directly caused by the increased phosphorous from the plant. It's well documented. Thank you.

Response FF5
Please see Responses DD1 through DD5, which address Mr. Weiss's written comments.

Comment FF6 - Larry Dufault
MR. DUFAULT: Yes. Larry Dufault, Spencer Board of Sewer Commissioner.

Not to be confrontational with you, Mr. Nielsen, but I grew up around a couple of lakes, not on them. And you know, 40, 50 years ago, I used to fish on that lake. It was bad then. You know, we'd put the boat in. We'd get out. We'd have to bring it back and scrub it down.

I have seen on that lake and many other lakes, what you have had over the past 50 years is camps that were being occupied for the weekend or whatever, and just for the summer, have now turned into McMansions everywhere. I have friends that have them.

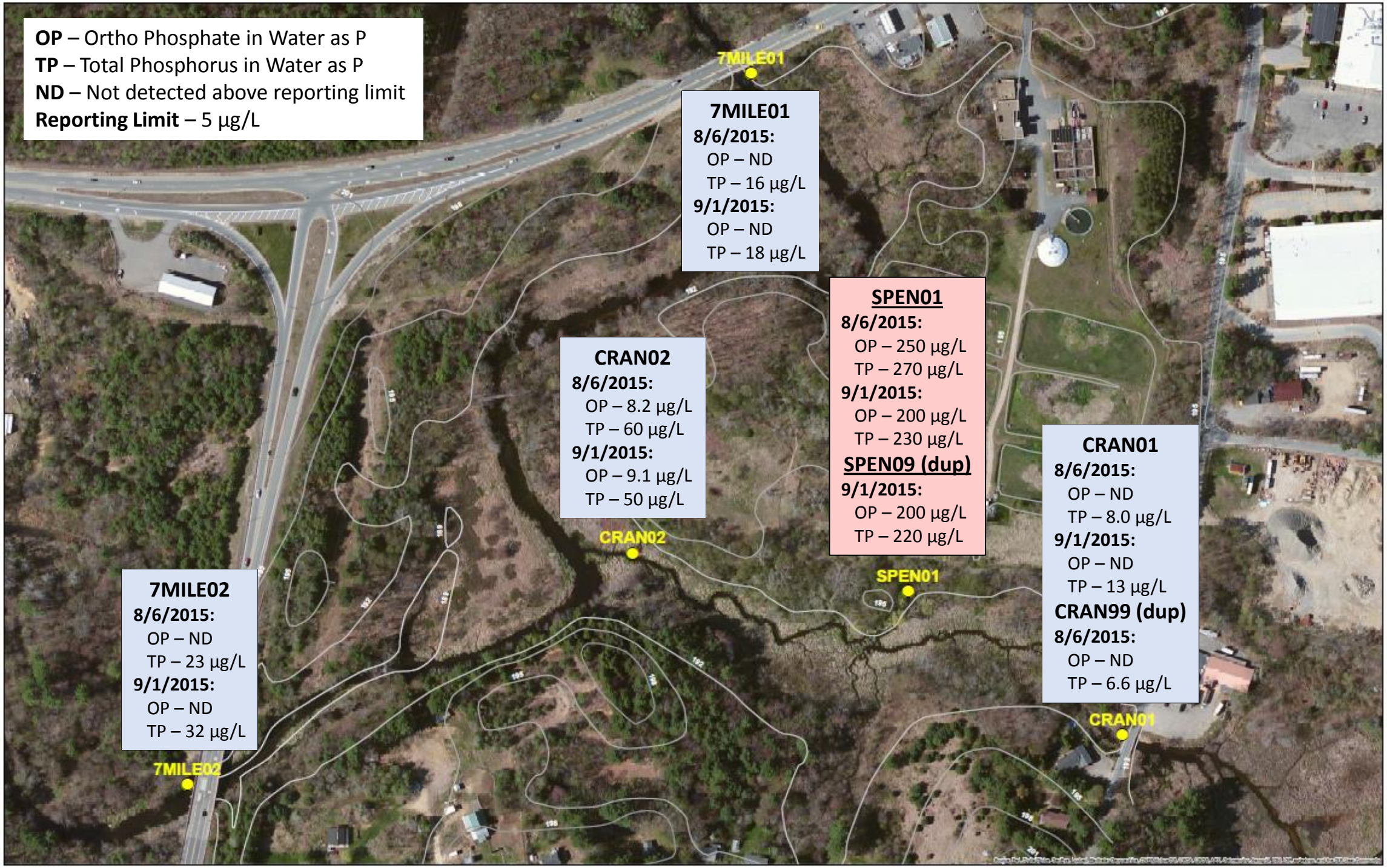
So now, you're getting a lot more septage going in right from your septage systems. Charlton did a nice thing when they got their system around Glen Echo Lake. I don't know that they forced everybody there, but most people hooked into it. And that's a really clean lake today. It always has been though.

Another thing to look at increased phosphorous is not just your lake, but you've got Wickaboag, Whittemore, Cranberry Lake, Stiles, all those houses around there are all on septic systems and where's it all going. It's going down to your house.

So, it's, you know, not just us. We understand our responsibility to the environment. But, at the same time, a lot of this phosphorous increase is coming from just so many more people being around these lakes year round. You know, I've seen it.

That's all I really have to say. And I agree. It's just -- there's a lot more people on these likes living year round and they use a lot more water today than they did in the past. So that is an issue. Thank you.

Response FF6
The comment is noted for the record.


OP – Ortho Phosphate in Water as P
TP – Total Phosphorus in Water as P
ND – Not detected above reporting limit
Reporting Limit – 5 µg/L
7MILE01
7MILE01
8/6/2015:
OP – ND
TP – 16 µg/L
9/1/2015:
OP – ND
TP – 18 µg/L
SPEN01
8/6/2015:
OP – 250 µg/L
TP – 270 µg/L
9/1/2015:
OP – 200 µg/L
TP – 230 µg/L
SPEN09 (dup)
9/1/2015:
OP – 200 µg/L
TP – 220 µg/L
CRAN02
8/6/2015:
OP – 8.2 µg/L
TP – 60 µg/L
9/1/2015:
OP – 9.1 µg/L
TP – 50 µg/L
CRAN02
SPEN01
CRAN01
8/6/2015:
OP – ND
TP – 8.0 µg/L
9/1/2015:
OP – ND
TP – 13 µg/L
CRAN99 (dup)
8/6/2015:
OP – ND
TP – 6.6 µg/L
CRAN01
7MILE02
8/6/2015:
OP – ND
TP – 23 µg/L
9/1/2015:
OP – ND
TP – 32 µg/L
7MILE02

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"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§ 26-53),

Town of Spencer
Sewer Commission

is authorized to discharge from the facility located at

Spencer Wastewater Treatment Plant
Route 9
Spencer, MA 01562

to receiving water named

Cranberry River

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 sixty days after signature.*

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 September 27, 2007.

This permit consists of **Part I** (18 pages including effluent limitations and monitoring requirements); **Attachment A** (Freshwater Acute Toxicity Test Procedure and Protocol, February 2011, 8 pages); **Attachment B** (USEPA Region 1 Freshwater Chronic Toxicity Test Procedure and Protocol, March 2013, 7 pages); and **Part II (**25 pages including NPDES Part II Standard Conditions).

Signed this day of

_____	_____
Ken Moraff, Director Office of Ecosystem Protection Environmental Protection Agency Boston, MA	Lealdon Langley, Director Massachusetts Wastewater Management Program Department of Environmental Protection Commonwealth of Massachusetts Boston, MA

* Pursuant to 40 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.

PART I

A.1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001** to Cranberry River. The discharge shall be limited and monitored as specified below; the receiving water and the influent shall be monitored as specified below.

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS**[1,2,3]	
PARAMETER	**AVERAGE MONTHLY**[4]	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**[4]	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
INFLUENT FLOW – ANNUAL AVERAGE[6,7]	********	********	1.08 MGD	********	********	CONTINUOUS	RECORDER
INFLUENT FLOW[6]	********	********	Report MGD	********	Report	CONTINUOUS	RECORDER
EFFLUENT FLOW – ANNUAL AVERAGE[7]	********	********	Report MGD	********	*********	CONTINUOUS	RECORDER
EFFLUENT FLOW	********	********	Report MGD	********	*********	CONTINUOUS	RECORDER
BOD_5[6] *(May 1 - October 31)* *(November 1 – April 30)*	50 lb/day 270 lb/day	68 lb/day 405 lb/day	5.6 mg/L 30 mg/L	7.5 mg/L 45 mg/L	Report mg/L	1/WEEK	24-HOUR COMPOSITE[5]
BOD_5 Removal[6]	≥ 85%	********	********	********	********	********	********
TSS[6] *(May 1-October 31)* *(November 1 – April 30)*	50 lb/day 270 lb/day	68 lb/day 405 lb/day	5.6 mg/L 30 mg/L	7.5 mg/L 45 mg/L	Report mg/L	1/WEEK	24-HOUR COMPOSITE[5]
TSS Removal[6]	≥ 85%	********	********	********	********	********	********
pH RANGE[8]	6.5 - 8.3 S.U.					1/DAY	GRAB
ESCHERICHIA COLI (*E. coli*)[9] *(April 1 – October 31)*	********	********	126 cfu/100 mL	********	409 cfu/100 mL	1/WEEK	GRAB
TOTAL COPPER[10]	********	********	10.3 µg/L	********	15.3 µg/L	1/MONTH	24-HOUR COMPOSITE[5]
DISSOLVED OXYGEN *(April 1-October 31)*	NOT LESS THAN 6.0 mg/L (daily minimum)					1/WEEK	GRAB

Sampling Location: Effluent cascade to Cranberry River

CONTINUED FROM PREVIOUS PAGE

A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001** to Cranberry River. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS [1,2,3]	
PARAMETER	**AVERAGE MONTHLY [4]**	**AVERAGE WEEKLY[4]**	**AVERAGE MONTHLY [4]**	**AVERAGE WEEKLY[4]**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
AMMONIA-NITROGEN [6,11] *(May 1 – October 31)* *(November 1 – April 30)*	5.0 lb/day 56.7 lb/day	7.5 lb/day *********	0.56 mg/L 6.3 mg/L	0.84 mg/L *********	Report mg/L Report mg/L	1/WEEK 2/MONTH	24-HOUR COMPOSITE[5]
TOTAL KJELDAHL NITROGEN [6,11] TOTAL NITRATE/NITRITE [6,11] TOTAL NITROGEN [6,11,13] *(May 1 – October 31)*	Report lb/day	*********	Report mg/L	*********	Report mg/L	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL KJELDAHL NITROGEN [6,11] TOTAL NITRATE/NITRITE [6,11] TOTAL NITROGEN [6,11,13] *(November 1 – April 30)*	Report lb/day	*********	Report mg/L	*********	Report mg/L	1/MONTH	24-HOUR COMPOSITE[5]
TOTAL PHOSPHORUS [6,12,13] *(May 1 – October 31)* *(November 1 – April 30)*	0.79 lb/day 1.19 lb/day	*********	0.1 mg/L 0.2 mg/L	*********	Report mg/L	3/WEEK 1/WEEK	24-HOUR COMPOSITE[5]

Sampling Location: Effluent cascade to Cranberry River

CONTINUED FROM PREVIOUS PAGE

A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001** to Cranberry River. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS [1,2,3]	
PARAMETER	**AVERAGE MONTHLY [4]**	**AVERAGE WEEKLY[4]**	**AVERAGE MONTHLY [4]**	**AVERAGE WEEKLY[4]**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
WHOLE EFFLUENT TOXICITY[14, 15, 16, 17]	Acute $LC_{50} \geq 100\%$ Chronic C-NOEC $\geq 93\%$					2/YEAR	24-HOUR COMPOSITE [5]
Hardness [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]
Total Recoverable Aluminum [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]
Total Recoverable Cadmium [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]
Total Recoverable Copper [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]
Total Recoverable Nickel [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]
Total Recoverable Lead [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]
Total Recoverable Zinc [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	24-HR COMP [5]

Sampling Location: Effluent cascade to Cranberry River

A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001** to Cranberry River. The receiving water shall be monitored as specified below.

AMBIENT CHARACTERISTIC	AMBIENT REPORTING REQUIREMENTS					MONITORING REQUIREMENTS [1,2,3]	
PARAMETER	**AVERAGE MONTHLY [4]**	**AVERAGE WEEKLY[4]**	**AVERAGE MONTHLY [4]**	**AVERAGE WEEKLY[4]**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Hardness [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab
pH[17]	*********	*********	*********	*********	Report S.U.	2/YEAR	Grab
Temperature[17]	*********	*********	*********	*********	Report ºC	2/YEAR	Grab
Total Recoverable Aluminum [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab
Total Recoverable Cadmium [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab
Total Recoverable Copper [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab
Total Recoverable Nickel [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab
Total Recoverable Lead [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab
Total Recoverable Zinc [16]	*********	*********	*********	*********	Report mg/L	2/YEAR	Grab

Sampling Location: Cranberry River at a point upstream of Outfall 001's zone of influence at a reasonably accessible location over a 1-hour period.

Footnotes:

1. Effluent samples shall be taken at a location that yields data representative of the discharge. A routine sampling program shall be developed in which samples are taken at the same location, same time and same days of the week each month. The Permittee shall submit the results to the Environmental Protection Agency Region 1 (EPA) and the State of any additional testing above that required herein, if testing is in accordance with 40 C.F.R. § 136. If there are treatment or wastewater flow changes during the compliance schedules in Section I.B. that warrant a new sampling location to obtain representative effluent samples, the location can be changed with written approval from EPA.

2. In accordance with 40 C.F.R. § 122.44(i)(1)(iv), the Permittee shall use sufficiently sensitive test procedures (i.e., methods) approved under 40 C.F.R. § 136 or required under 40 C.F.R. Chapter I, Subchapter N or O, for the analysis of pollutants or pollutant parameters limited in this permit (except WET). A method is considered "sufficiently sensitive" when either 1) The method minimum level is at or below the level of the applicable water quality criterion or permit effluent limitation for the measured pollutant or pollutant parameter; or 2) The method has the lowest minimum level of the analytical methods approved under 40 C.F.R. § 136 or required under 40 C.F.R. Chapter I, Subchapter N or O for the measured pollutant or pollutant parameter. The "minimum level" is the lowest level at which the test equipment produces a recognizable signal and acceptable calibration point for a pollutant or pollutant parameter, representative of the lowest concentration at which a pollutant or pollutant parameter can be measured with a known level of confidence.

3. When a parameter is not detected above the minimum level of detection, the Permittee must report the data qualifier signifying less than the minimum level of detection for that parameter (e.g., < 50 µg/L, if the minimum level of detection for a parameter is 50 µg/L). For the purposes of this permit, the "minimum level of detection" is the lowest concentration that can be reliably measured within specified limits of precision and accuracy for a specific laboratory analytical method during routine laboratory operating conditions (i.e., the level above which an actual value is reported for a pollutant or pollutant parameter, and the level below which a pollutant or pollutant parameter is reported as non-detect).

4. In calculating and reporting the average monthly or average weekly concentration when the pollutant is not detected, assign zero to the non-detected sample result if the pollutant was not detected for all monitoring periods in the prior twelve months. If the pollutant was detected in at least one monitoring period in the prior twelve months, then assign each non-detected sample result a value that is equal to one half of the minimum level of detection for the purposes of calculating averages.

5. Each composite sample will consist of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.

6. Use influent flow rate to calculate mass loading.

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

8. 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.).

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

10. Copper analysis must be completed using a test method in 40 C.F.R. § 136 that achieves a minimum level no greater than 3 μg/L.

11. Ammonia nitrogen, total Kjeldahl nitrogen and total nitrate + nitrite nitrogen samples shall be collected concurrently. The results of these analyses shall be used to calculate both the concentration and mass loadings of total nitrogen (total nitrogen = total Kjeldahl nitrogen + total nitrate/nitrite nitrogen).

    The total nitrogen loading values reported each month shall be calculated as follows: Total Nitrogen (lbs/day) = [(average monthly total nitrogen concentration (mg/l) * total monthly influent flow (Millions of Gallons (MG)) / # of days in the month] *8.34

12. The 0.79 lb/day total phosphorus limit is a seasonal average limit for the period May 1 – October 31. The seasonal mass total phosphorus load shall be calculated as the arithmetic mean of the six monthly average total phosphorus loads for the months of May 1 – October 31, and shall be reported in November of each year.

    The 1.19 lb/day total phosphorus limit is a seasonal average limit for the period November 1 – April 30. The seasonal mass total phosphorus load shall be calculated as the arithmetic mean of the six monthly average total phosphorus load for the months of November 1 – April 30, and shall be reported in May of each year.

13. See Section I.B. for special conditions related to nitrogen and phosphorus.

14. The Permittee shall conduct acute toxicity tests (LC_{50}) and chronic toxicity tests (C-NOEC) in accordance with test procedures and protocols specified in **Attachments A and B** of this permit. LC_{50} and C-NOEC are defined in Part II.E. of this permit. The Permittee shall test the daphnid, *Ceriodaphnia dubia*, and the fathead minnow, *Pimephales promelas*. Toxicity test samples shall be collected

and tests completed during the same weeks each time of calendar quarters ending February 28 and August 31. The test results shall be submitted as an attachment to the monthly DMR submittal immediately following the completion of the test.

15. The receiving water chemical analysis represents analysis of the receiving water sample collected as part of the WET testing requirements. Such samples shall be taken at a location that provides a representative analysis of the receiving water upstream of the permitted discharge's zone of influence as specified in **Attachment A**. If toxicity test(s) using the receiving water as diluent show the receiving water to be toxic or unreliable, the Permittee shall either follow procedures outlined in **Attachment A**, Section IV., DILUTION WATER, or the Permittee shall follow the Self-Implementing Alternative Dilution Water Guidance found in *NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs).*

16. The Permittee shall conduct the analyses specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS, of this permit. For Part I.A.1., Whole Effluent Toxicity Testing, the Permittee shall report the results for the effluent sample. For Part I.A.1., Receiving Water Chemical Analysis, the Permittee shall report the results for the receiving water sample. Minimum levels and test methods are specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS.

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

Part I.A. continued

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

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

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

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

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

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

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

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

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

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

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

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

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

B. SPECIAL CONDITIONS

1. Total Nitrogen

   a. Within **one year of the effective date of the permit**, the permittee shall complete an evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen in order to maintain the annual average mass discharge of total nitrogen at less than the baseline mass loading of 86.2 lb/day, and submit a report to EPA and MassDEP documenting this evaluation and presenting a description of recommended operational changes. The methods to be evaluated include, but are not limited to, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. This report may be combined with the permittees' annual nitrogen report under Part I.B.1.b, if both reports are submitted to EPA and MassDEP by February 1st.

   b. The permittee shall also submit an annual report to EPA and the MassDEP, by **February 1st** each year, that summarizes activities related to optimizing nitrogen removal efficiencies, documents the annual nitrogen discharge load from the facility, and tracks trends relative to the previous year. If, in any year, the treatment facility discharges in excess of 86.2 lb/day TN on an annual average basis, the annual report shall include a detailed explanation of the reasons why TN discharges have increased, including any changes in influent flows/loads and any operational changes. The report shall also include all supporting data.

2. Total Phosphorus

   In order to comply with the permit limits, the Permittee shall take the following actions with regard to total phosphorus:

   a. The interim monthly average total phosphorus interim limits are 0.2 mg/L and 0.79 lb/day during the summer period (May 1 – October 31) and 0.3 mg/L and 1.19 lb/day during the winter period (November 1 – April 30). The permittee shall meet these limits until it attains compliance with the final phosphorus effluent limits in Part I.A.1.

   b. No later than **December 31, 2018**, complete a conceptual design to meet the total phosphorus limit.

   c. Complete design plans and specifications for necessary upgrades no later than **July 31, 2020**.

   d. Start construction of necessary upgrades no later than **May 1, 2021**.

   e. Attain compliance with the final effluent limits for total phosphorus no later than **December 31, 2024**.

   f. Until the limit is achieved, the Town shall submit reports to EPA and MassDEP no later than **December 31** of each year summarizing progress for that calendar year.

C. UNAUTHORIZED DISCHARGES

This permit authorizes discharges only from the outfall(s) listed in Part I.A.1, in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit and shall be reported to EPA and MassDEP in accordance with Section D.1.e.(1) of the General Requirements of this permit (Twenty-four-hour reporting).

Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes DEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at https://www.mass.gov/how-to/sanitary-sewer-overflowbypassbackup-notification.

D. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

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

1. Maintenance Staff

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

4. Collection System Mapping

   Within 30 months of the effective date of this permit, the permittee shall prepare a map of the sewer collection system it owns (see page 1 of this permit for the effective date). The map shall be on a street map of the community, with sufficient detail and at a scale to allow easy interpretation. The collection system information shown on the map shall be based on current

conditions and shall be kept up to date and available for review by federal, state, or local agencies. Such map(s) shall include, but not be limited to the following:

a. All sanitary sewer lines and related manholes;

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

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

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

e. All pump stations and force mains;

f. The wastewater treatment facility(ies);

g. All surface waters (labeled);

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

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

j. The scale and a north arrow; and

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

5. Collection System O&M Plan

The permittee shall develop and implement a Collection System O&M Plan.

a. Within six (6) months of the effective date of the permit, the permittee shall submit to EPA and MassDEP

(1) A description of the collection system management goals, staffing, information management, and legal authorities;
(2) A description of the collection system and the overall condition of the collection system including a list of all pump stations and a description of recent studies and construction activities; and
(3) A schedule for the development and implementation of the full Collection System O&M Plan including the elements in paragraphs b.1. through b.8. below.

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

(1) The required submittal from paragraph 5.a. above, updated to reflect current information;
(2) A preventive maintenance and monitoring program for the collection system;
(3) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;
(4) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;
(5) Identification of known and suspected overflows and back-ups, including manholes. A description of the cause of the identified overflows and back-ups, corrective actions taken, and a plan for addressing the overflows and back-ups consistent with the requirements of this permit;
(6) A description of the permittee's programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts; and
(7) An educational public outreach program for all aspects of I/I control, particularly private inflow.
(8) An Overflow Emergency Response Plan to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the permit.

6. Annual Reporting Requirement

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 MassDEP 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. If treatment plant flow has reached 80% of its design flow [0.864 MGD] based on the annual average flow during the reporting year, or there have been capacity related overflows, submit a calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year; and

f. 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.

E. 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[1] it owns and operates.

F. INDUSTRIAL USERS

1. The Permittee shall submit to EPA and MassDEP the name of any Industrial User (IU) subject to Categorical Pretreatment Standards under 40 C.F.R. § 403.6 and 40 C.F.R. Chapter I, Subchapter N (§§ 405-415, 417-436, 439-440, 443, 446-447, 454-455, 457-461, 463-469, and 471 as amended) who commences discharge to the POTW after the effective date of this permit.

   This reporting requirement also applies to any other IU who discharges an average of 25,000 gallons per day or more of process wastewater into the POTW (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastewater which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the POTW; or is designated as such by the Control Authority as defined in 40 C.F.R. § 403.12(a) 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 reports (baseline monitoring reports, 90-day compliance reports, periodic reports on continued compliance, etc.) from industrial users subject to Categorical Pretreatment Standards under 40 C.F.R. § 403.6 and 40 C.F.R. Chapter I, Subchapter N (§§ 405-415, 417-436, 439-440, 443, 446-447, 454-455, 457-461, 463-469, and 471 as amended), the Permittee shall forward all copies of these reports within ninety (90) days of their receipt to EPA and MassDEP.

G. 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 Section 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.

[1] As defined at 40 CFR §122.2, which references the definition at 40 CFR §403.3

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 including the following elements:

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

Which of the 40 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.

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

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

7. Under 40 CFR § 503.9(r), the permittee is a "person who prepares sewage sludge" because it

[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

"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 Part 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 "Monitoring and Reporting" section below).

H. MONITORING AND REPORTING

The monitoring program in the permit specifies sampling and analysis, which will provide continuous information on compliance and the reliability and effectiveness of the installed pollution abatement equipment. The approved analytical procedures found in 40 CFR Part 136 are required unless other procedures are explicitly required in the permit. The permittee is obligated to monitor and report sampling results to EPA and the MassDEP within the time specified within the permit.

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 MassDEP 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 MassDEP. NetDMR is accessed from the internet at http://www.epa.gov/netdmr.

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. Permittees shall continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP. (See Part I.H.7. for more information on State reporting.) Because the due dates for reports described in this permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the particular report due date specified in this permit.

3. Submittal of Biosolids/Sewage Sludge Reports

By February 19 of each year, the permittee must electronically report their annual Biosolids/Sewage Sludge Report for the previous calendar year using EPA's NPDES Electronic Reporting Tool ("NeT") found on the internet at https://www.epa.gov/compliance/npdes-ereporting.

4. Submittal of Requests and Reports to EPA/OEP

The following requests, reports, and information described in this permit shall be submitted to the EPA/OEP NPDES Applications Coordinator in the EPA Office Ecosystem Protection (OEP).

a. Transfer of Permit notice
b. Request for changes in sampling location
c. Request for reduction in testing frequency
d. Request for reduction in WET testing requirement
e. Report on unacceptable dilution water / request for alternative dilution water for WET testing
f. Notification of proposal to add or replace chemicals and bio-remedial agents including microbes

These reports, information, and requests shall be submitted to EPA/OEP electronically at R1NPDES.Notices.OEP@epa.gov or by hard copy mail to the following address:

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

6. Submittal of Reports in Hard Copy Form

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

a. Written notifications required under Part II
b. Notice of unauthorized discharges, including Sanitary Sewer Overflow (SSO) reporting

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

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

7. State Reporting

Unless otherwise specified in this permit or by the State, duplicate signed copies of all reports, information, requests or notifications described in this permit, including the reports, information, requests or notifications described in Parts I.H.3 through I.H.6 also shall be submitted to the State at the following addresses:

MassDEP – Central Region
Bureau of Water Resources
8 New Bond Street
Worcester, Massachusetts 01606

Copies of toxicity tests and nitrogen optimization reports only shall be submitted to:

Massachusetts Department of Environmental Protection
Watershed Planning Program
8 New Bond Street
Worcester, Massachusetts 01606

8. Verbal Reports and Verbal Notifications

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

EPA's Office of Environmental Stewardship at: 617-918-1510

and to

MassDEP's Emergency Response at 888-304-1133.

I. STATE PERMIT CONDITIONS

1. This authorization to discharge includes two separate and independent permit authorizations. The two permit authorizations are (i) a federal National Pollutant Discharge Elimination System permit issued by the U.S. Environmental Protection Agency (EPA) pursuant to the Federal Clean Water Act, 33 U.S.C. §§ 1251 et seq.; and (ii) an identical state surface water discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection (MassDEP) pursuant to the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and 314 C.M.R. 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.

2. This authorization also incorporates the state water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. § 124.53, M.G.L. c. 21, § 27 and 314 CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality

certification for the permit are hereby incorporated by reference into this state surface water discharge permit as special conditions pursuant to 314 CMR 3.11.

3. Each agency shall have the independent right to enforce the terms and conditions of this permit. 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 this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as a NPDES Permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of federal law, this permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.

USEPA REGION 1 FRESHWATER ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

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

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

III. SAMPLE COLLECTION

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

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

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

IV. DILUTION WATER

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

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

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

and

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

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

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

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

V. TEST CONDITIONS

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

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

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

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

Footnotes:

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

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

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

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

Footnotes:

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

VI. CHEMICAL ANALYSIS

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

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

Notes:

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

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

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

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

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

FRESHWATER CHRONIC
TOXICITY TEST PROCEDURE AND PROTOCOL
USEPA Region 1

I. GENERAL REQUIREMENTS

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

- **Daphnid (Ceriodaphnia dubia) Survival and Reproduction Test.**
- **Fathead Minnow (Pimephales promelas) Larval Growth and Survival Test.**

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

II. METHODS

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

III. SAMPLE COLLECTION AND USE

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

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

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

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

IV. DILUTION WATER

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

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

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

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

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

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

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

Director
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

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

V.1. Use of Reference Toxicity Testing

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

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

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

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

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

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

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

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

VI. CHEMICAL ANALYSIS

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

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

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1, 4]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3, 4]	x		0.02
Alkalinity[4]	x	x	2.0
pH[4]	x	x	--
Specific Conductance[4]	x	x	--
Total Solids[6]	x		--
Total Dissolved Solids[6]	x		--
Ammonia[4]	x	x	0.1
Total Organic Carbon[6]	x	x	0.5
Total Metals[5]			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 2340B (hardness by calculation)
  -Method 2340C (titration)

2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 4500-CL E Low Level Amperometric Titration
  -Method 4500-CL G DPD Colorimetric Method
- USEPA 1983. Manual of Methods Analysis of Water and Wastes
  -Method 330.5

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

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

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

2. Test Variability (Test Sensitivity)

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

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

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

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

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

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

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

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

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

2. *Pimephales promelas*

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

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

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

3. *Ceriodaphnia dubia*

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

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

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

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

In addition to the summary sheets the report must include:

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

NPDES PART II STANDARD CONDITIONS
(January, 2007)

TABLE OF CONTENTS

PART II. 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) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

a. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the 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, even if the permit has not yet been modified to incorporate the requirements.

b. The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any of such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402 (a)(3) or 402 (b)(8) of the CWA is subject to a civil penalty not to exceed $25,000 per day for each violation. Any person who negligently violates such requirements is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or both. Any person who knowingly violates such requirements 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.

c. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

Note: See 40 CFR §122.41(a)(2) for complete “Duty to Comply” regulations.

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 notifications of planned changes or anticipated noncompliance does not stay any permit condition.

3. Duty to Provide Information

The permittee shall furnish to the Regional Administrator, within a reasonable time, any information which the Regional Administrator 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 Regional Administrator, upon request, copies of records required to be kept by this permit.

4. Reopener Clause

The Regional Administrator reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA in order to bring all discharges into compliance with the CWA.

For any permit issued to a treatment works treating domestic sewage (including "sludge-only facilities"), the Regional Administrator or Director shall include a reopener clause to incorporate any applicable standard for sewage sludge use or disposal promulgated under Section 405 (d) of the CWA. The Regional Administrator or Director may promptly modify or revoke and reissue any permit containing the reopener clause required by this paragraph if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or contains a pollutant or practice not limited in the permit.

Federal regulations pertaining to permit modification, revocation and reissuance, and termination are found at 40 CFR §122.62, 122.63, 122.64, and 124.5.

5. 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).

6. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges.

7. Confidentiality of Information

a. In accordance with 40 CFR 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 CFR 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 as defined in 40 CFR §2.302(a)(2).

c. Information required by NPDES application forms provided by the Regional Administrator under 40 CFR §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.

8. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after its expiration date, 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 Regional Administrator. (The Regional Administrator shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

9. State Authorities

Nothing in Part 122, 123, or 124 precludes more stringent State regulation of any activity covered by these regulations, whether or not under an approved State program.

10. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, nor does it relieve the permittee of its obligation to comply with any other applicable Federal, State, or local laws and regulations.

PART II. 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 and with the requirements of storm water pollution prevention plans. 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 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 be reasonably 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 provision of Paragraphs B.4.c. and 4.d. of this section.

c. Notice

(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (Twenty-four hour reporting).

d. Prohibition of bypass

Bypass is prohibited, and the Regional Administrator may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
(2) 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
(3) i) The permittee submitted notices as required under Paragraph 4.c. of this section.
ii) The Regional Administrator may approve an anticipated bypass, after considering its adverse effects, if the Regional Administrator determines that it will meet the three conditions listed above in paragraph 4.d. of this section.

5. Upset

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

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph B.5.c. of this section are met. No determination made during

administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

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

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated;
(3) The permittee submitted notice of the upset as required in paragraphs D.1.a. and 1.e. (Twenty-four hour notice); and
(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.

PART II. 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 for 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 five years (or longer as required by 40 CFR Part 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 except for the information concerning storm water discharges which must be retained for a total of 6 years. This retention period may be extended by request of the Regional Administrator 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 results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.

e. 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.

2. Inspection and Entry

The permittee shall allow the Regional Administrator 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 CWA, any substances or parameters at any location.

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

a. Planned Changes. The permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required 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 CFR§122.29(b); or
(2) The alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged. This notification applies to pollutants which are subject neither to the effluent limitations in the permit, nor to the notification requirements at 40 CFR§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 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 Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

c. Transfers. This permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator 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 CWA. (See 40 CFR Part 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.

(2) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of the 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 submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission 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.

(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 CFR §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 Regional Administrator in the permit to be reported within 24 hours. (See 40 CFR §122.44(g).)

(3) The Regional Administrator may waive the written report on a case-by-case basis for reports under Paragraph D.1.e. if the oral report has been received within 24 hours.

f. Compliance Schedules. Reports of compliance or noncompliance with, 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.

h. Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, it shall promptly submit such facts or information.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR §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 noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 2 years per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under Paragraph A.8. 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 Regional Administrator. 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.

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

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 to, 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 and disposal” under Sections 301, 302, 303, 304, 306, 307, 308, 403, and 405 of the CWA.

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

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For total and/or fecal coliforms and Escherichia coli, the average shall be the geometric mean.

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" measured during the calendar week divided by the number of "daily discharges" measured during the 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.

Best Professional Judgment (BPJ) means a case-by-case determination of Best Practicable Treatment (BPT), Best Available Treatment (BAT), or other appropriate technology-based standard based on an evaluation of the available technology to achieve a particular pollutant reduction and other factors set forth in 40 CFR §125.3 (d).

Coal Pile Runoff means the rainfall runoff from or through any coal storage pile.

Composite Sample means a sample consisting of a minimum of eight grab samples of equal volume collected at equal intervals during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportional to flow, or a sample consisting of the same number of grab samples, or greater, collected proportionally to flow over that same time period.

Construction Activities - The following definitions apply to construction activities:

(a) Commencement of Construction is the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

(b) Dedicated portable asphalt plant is a portable asphalt plant located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR Part 443.

(c) Dedicated portable concrete plant is a portable concrete plant located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

(d) Final Stabilization means that all soil disturbing activities at the site have been complete, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

(e) Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff.

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) Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, and Pub. L. 97-117; 33 USC §§1251 et seq.

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

Director normally means the person authorized to sign NPDES permits by EPA or the State or an authorized representative. Conversely, it also could mean the Regional Administrator or the State Director as the context requires.

Discharge Monitoring Report Form (DMR) means the EPA standard 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 (See "Point Source" definition).

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 Regional Administrator 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".

EPA means the United States "Environmental Protection Agency".

Flow-weighted composite sample means a composite sample consisting of a mixture of aliquots where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab Sample – An individual sample collected in a period of less than 15 minutes.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the CWA.

Indirect Discharger means a non-domestic discharger introducing pollutants to a publicly owned treatment works.

Interference means a discharge 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 (CWA), 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 which is not a land application unit, surface impoundment, injection well, or waste pile.

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

Large and Medium municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and 40 CFR Part 122); or (ii) located in the counties with unincorporated urbanized

populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR 122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.

Maximum daily discharge limitation means the highest allowable "daily discharge" concentration that occurs only during a normal day (24-hour duration).

Maximum daily discharge limitation (as defined for the Steam Electric Power Plants only) when applied to Total Residual Chlorine (TRC) or Total Residual Oxidant (TRO) is defined as "maximum concentration" or "Instantaneous Maximum Concentration" during the two hours of a chlorination cycle (or fraction thereof) prescribed in the Steam Electric Guidelines, 40 CFR Part 423. These three synonymous terms all mean "a value that shall not be exceeded" during the two-hour chlorination cycle. This interpretation differs from the specified NPDES Permit requirement, 40 CFR § 122.2, where the two terms of "Maximum Daily Discharge" and "Average Daily Discharge" concentrations are specifically limited to the daily (24-hour duration) values.

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 tribe organization, or a designated and approved management agency under Section 208 of the CWA.

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 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 rig 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 Regional Administrator 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 Regional Administrator shall consider the factors specified in 40 CFR §§125.122 (a) (1) through (10).

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System".

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

Pass through means a Discharge 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).

Permit means an authorization, license, or equivalent control document issued by EPA or an "approved" State.

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

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 CFR §122.2).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

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

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

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operation is not the operator of the treatment works or (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 any facility or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a "State" or "municipality".

This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

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

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

Section 313 water priority chemical means a chemical or chemical category which:

(1) is listed at 40 CFR §372.65 pursuant to Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986);

(2) is present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and

(3) satisfies at least one of the following criteria:

(i) are listed in Appendix D of 40 CFR Part 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols), or Table V (certain toxic pollutants and hazardous substances);
(ii) are listed as a hazardous substance pursuant to Section 311(b)(2)(A) of the CWA at 40 CFR §116.4; or
(iii) are pollutants for which EPA has published acute or chronic water quality criteria.

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, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III Marine Sanitation Device pumpings (33 CFR 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 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, 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 EPCRA Section 313, 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 CFR §110.10 and §117.21) or Section 102 of CERCLA (see 40 CFR § 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 CFR §122.1(b)(3).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands.

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 which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. (See 40 CFR §122.26 (b)(14) for specifics of this definition.

Time-weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

Toxic pollutants 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 wastewater 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 wastewater 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 Regional Administrator may designate any person subject to the standards for sewage sludge use and disposal in 40 CFR 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 CFR Part 503.

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

Waters of the United States 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 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 the CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration 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. (See Abbreviations Section, following, for additional information.)

2. Definitions for NPDES Permit Sludge Use and Disposal Requirements.

Active sewage sludge unit is a sewage sludge unit that has not closed.

Aerobic Digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

Agricultural Land is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.

Agronomic rate is the whole sludge application rate (dry weight basis) designed:

(1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and

(2) To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

Air pollution control device is one or more processes used to treat the exit gas from a sewage sludge incinerator stack.

Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

Annual pollutant loading rate is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.

Annual whole sludge application rate is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period.

Apply sewage sludge or sewage sludge applied to the land means land application of sewage sludge.

Aquifer is a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding ground water to wells or springs.

Auxiliary fuel is fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of the sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel.

Base flood is a flood that has a one percent chance of occurring in any given year (i.e. a flood with a magnitude equaled once in 100 years).

Bulk sewage sludge is sewage sludge that is not sold or given away in a bag or other container for application to the land.

Contaminate an aquifer means to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR §141.11 to be exceeded in ground water or that causes the existing concentration of nitrate in the ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR §141.11.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR §501.2, required to have an approved pretreatment program under 40 CFR §403.8 (a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR §403.10 (e) and any treatment works treating domestic sewage, as defined in 40 CFR § 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 sewage sludge use or disposal practice to affect public health and the environment adversely.

Control efficiency is the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

Cover is soil or other material used to cover sewage sludge placed on an active sewage sludge unit.

Cover crop is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

Cumulative pollutant loading rate is the maximum amount of inorganic pollutant that can be applied to an area of land.

Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

Dispersion factor is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

Displacement is the relative movement of any two sides of a fault measured in any direction.

Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

Domestic sewage is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

Dry weight basis means calculated on the basis of having been dried at 105 degrees Celsius (°C) until reaching a constant mass (i.e. essentially 100 percent solids content).

Fault is a fracture or zone of fractures in any materials along which strata on one side are displaced with respect to the strata on the other side.

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

Final cover is the last layer of soil or other material placed on a sewage sludge unit at closure.

Fluidized bed incinerator is an enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles suspended in the combustion chamber gas.

Food crops are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

Forest is a tract of land thick with trees and underbrush.

Ground water is water below the land surface in the saturated zone.

Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present.

Hourly average is the arithmetic mean of all the measurements taken during an hour. At least two measurements must be taken during the hour.

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

Industrial wastewater is wastewater generated in a commercial or industrial process.

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 with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, a public contact site and reclamation site located in a populated area (e.g., a construction site located in a city).

Land with low potential for public exposure is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

Leachate collection system is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit.

Liner is soil or synthetic material that has a hydraulic conductivity of 1×10^{-7} centimeters per second or less.

Lower explosive limit for methane gas is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

Monthly average (Incineration) is the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month.

Monthly average (Land Application) is the arithmetic mean of all measurements taken during the month.

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.

Other container is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

Pasture is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

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

Permitting authority is either EPA or a State with an EPA-approved sludge management program.

Person is 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; a measure of the acidity or alkalinity of a liquid or solid material.

Place sewage sludge or sewage sludge placed means disposal of sewage sludge on a surface disposal site.

Pollutant (as defined in sludge disposal requirements) is an organic substance, an inorganic substance, a combination or organic and inorganic substances, or pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could on the basis on information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction) or physical deformations in either organisms or offspring of the organisms.

Pollutant limit (for sludge disposal requirements) is a numerical value that describes the amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams per kilogram of total solids); the amount of pollutant that can be applied to a unit of land (e.g., kilograms per hectare); or the volume of the material that can be applied to the land (e.g., gallons per acre).

Public contact site is a land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

Qualified ground water scientist is an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in ground water hydrology and related fields, as may be demonstrated by State registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding ground water monitoring, pollutant fate and transport, and corrective action.

Range land is open land with indigenous vegetation.

Reclamation site is drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites.

Risk specific concentration is the allowable increase in the average daily ground level ambient air concentration for a pollutant from the incineration of sewage sludge at or beyond the property line of a site where the sewage sludge incinerator is located.

Runoff is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off the land surface.

Seismic impact zone is an area that has 10 percent or greater probability that the horizontal ground level acceleration to the rock in the area exceeds 0.10 gravity once in 250 years.

Sewage sludge is a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to:, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in treatment works.

Sewage sludge feed rate is either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365 day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located.

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

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR §122.2.

Sewage sludge unit boundary is the outermost perimeter of an active sewage sludge unit.

Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in sewage sludge.

Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 meters. When the difference is greater than 65 meters, stack height is the creditable stack height determined in accordance with 40 CFR §51.100 (ii).

State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, and an Indian tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.

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.

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

Total hydrocarbons means the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane.

Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

Treat or treatment of sewage sludge is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

Treatment works is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

Unstable area is land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

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

Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

Wet electrostatic precipitator is an air pollution control device that uses both electrical forces and water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

Wet scrubber is an air pollution control device that uses water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

3. 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)	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen
kg/day	Kilograms per day
lbs/day	Pounds per day
mg/l	Milligram(s) per liter
ml/l	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
pH	A measure of the hydrogen ion concentration. A measure of the acidity or alkalinity of a liquid or material
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)
ug/l	Microgram(s) per liter
WET	"Whole effluent toxicity" is the total effect of an effluent measured directly with a toxicity test.
C-NOEC	"Chronic (Long-term Exposure Test) – No Observed Effect Concentration". 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.
A-NOEC	"Acute (Short-term Exposure Test) – No Observed Effect Concentration" (see C-NOEC definition).
LC_{50}	LC_{50} is the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC_{50} = 100% is defined as a sample of undiluted effluent.
ZID	Zone of Initial Dilution means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports.

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: MA0100919

PUBLIC NOTICE START AND END DATES: February 26, 2018 – March 28, 2018

NAME AND MAILING ADDRESS OF APPLICANT:

Town of Spencer Sewer Commission
3 Old Meadow Road
Spencer, MA 01562

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Town of Spencer Wastewater Treatment Plant
69 West Main Street
Spencer, MA 01562

RECEIVING WATER(S): Cranberry River (MA36-20)

RECEIVING WATER CLASSIFICATION(S): Class B, Warm Water Fishery

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APPENDICES

1 Proposed Action, Type of Facility, and Discharge Location

The above-named applicant has applied to the U.S. Environmental Protection Agency for the re-issuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge into the designated receiving water. The draft permit proposes an expiration date five (5) years from the effective date of the final permit.

The permit currently in effect was issued on September 27, 2007 with an effective date of December 1, 2007 and expired on November 30, 2012 ("2007 Permit"). The Permittee filed an application for permit reissuance with EPA dated May 31, 2012, as required by 40 Code of Federal Regulations (CFR) § 122.6. Since the permit application was deemed timely and complete by EPA on June 25, 2012, the Facility's 2007 Permit has been administratively continued pursuant to 40 CFR § 122.6 and § 122.21(d). EPA and the State conducted a site visit on May 19, 2017.

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

The collection system is 100% separate sanitary sewers.

2 Statutory and Regulatory Authority

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

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

2.1 Technology-Based Requirements

Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant reducing technology available and economically achievable for the type of facility being permitted. *See* CWA § 301(b). As a class, publicly owned treatment works (POTWs) must meet performance-based requirements based on available wastewater treatment technology. *See* CWA § 301(b)(1)(B). The performance level for POTWs is referred to as "secondary treatment." Secondary treatment is comprised of technology-based requirements expressed in terms of BOD_5, TSS and pH. *See* 40 CFR § 133.

Under § 301(b)(1) of the CWA, POTWs must have achieved effluent limits based upon secondary treatment technology by July 1, 1997. Since all statutory deadlines for meeting various treatment technology-based effluent limitations established pursuant to the CWA have expired. When technology-based effluent limits are included in a permit, compliance with those limitations is from the date the issued permit becomes effective. *See* 40 CFR § 125.3(a)(1).

2.2 Water Quality Based Requirements

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

2.2.1 Water Quality Standards

The CWA requires that each state develop water quality standards (WQSs) for all water bodies within the State. *See* CWA § 303 and 40 CFR § 131.10-12. Generally, WQSs consist of three parts: 1) beneficial designated use or uses for a water-body or a segment of a water-body; 2) numeric or narrative water quality criteria sufficient to protect the assigned designated use(s); and 3) anti-degradation requirements to ensure that once a use is attained it will not be degraded and to protect high quality and National resource waters. *See* CWA § 303(c)(2)(A) and 40 CFR § 131.12. The applicable State WQSs can be found in Title 314 of the Code of Massachusetts Regulations, Chapter 4 (314 CMR 4.00) Also *See* generally, Title 50, Water Management and Protection, Chapters 485A, Water Pollution and Waste Disposal Section 485-A.

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

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

2.2.2 Anti-degradation

Federal regulations found at 40 CFR § 131.12 require states to develop and adopt a statewide anti-degradation policy that maintains and protects existing in-stream water uses and the level of water quality necessary to protect these existing uses. In addition, the anti-degradation policy ensures that high quality waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and support

recreation in and on the water, are maintained unless the State finds that allowing degradation is necessary to accommodate important economic or social development in the area in which the waters are located.

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

This permit is being reissued with effluent limitations sufficiently stringent to protect the existing uses of the receiving water.

2.2.3 Assessment and Listing of Waters and Total Maximum Daily Loads

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

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

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

2.2.4 Reasonable Potential

Pursuant to 40 CFR § 122.44(d)(1), NPDES permits must contain any requirements in addition to TBELs necessary to achieve water quality standards established under § 303 of the CWA. In addition, limitations "must control any pollutant or pollutant parameter (conventional, non-conventional, or toxic) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any water quality standard, including State narrative criteria for water quality". *See* 40 CFR § 122.44(d)(1)(i). There is reasonable potential to cause or contribute to an excursion if the projected or actual in-stream concentration exceeds the applicable criterion. If the permitting authority determines that a discharge causes, has the reasonable potential to cause, or

contributes to such an excursion, the permit must contain WQBELs for the pollutant. *See* 40 CFR 122.44(d)(1)(iii).

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

2.2.5 State Certification

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

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

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

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

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

2.3 Effluent Flow Requirements

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

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

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

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

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

In addition, as provided in Part II.B.1 of this permit and 40 CFR § 122.41(e), the permittee is required to properly operate and maintain all facilities and systems of treatment and control. Operating the facilities wastewater treatment systems as designed includes operating within the facility's design wastewater effluent flow. Thus, the permit's wastewater effluent flow limitation is necessary to ensure proper facility operation, which in turn is a requirement applicable to all NPDES permits. *See* 40 CFR § 122.41.

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

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

2.4 Monitoring and Reporting Requirements

2.4.1 Monitoring Requirements

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

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

NPDES permits require that the approved analytical procedures found in 40 CFR § 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

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

authority must prescribe that only sufficiently sensitive EPA-approved methods be used for analyses of pollutants or pollutant parameters under the permit. The NPDES regulations at 40 CFR § 122.21(e)(3) (completeness), 40 CFR § 122.44(i)(1)(iv) (monitoring requirements) and/or as cross referenced at 40 CFR § 136.1(c) (applicability) indicate that an EPA-approved method is sufficiently sensitive where:

- The method minimum level[3] (ML) is at or below the level of the applicable water quality criterion or permit limitation for the measured pollutant or pollutant parameter; or
- In the case of permit applications, the ML is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or parameter in the discharge; or
- The method has the lowest ML of the EPA-approved analytical methods.

2.4.2 Reporting Requirements

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

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

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

2.5 Anti-backsliding

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

All proposed limitations in the Draft Permit are at least as stringent as limitations included in the 2007 Permit unless specific conditions exist to justify one of the exceptions listed in 40 CFR § 122.44(l)(2)(i) and/or in accordance with § 303(d)(4). Discussion of any applicable exceptions are discussed in sections

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

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

that follow. Therefore, the Draft Permit complies with the anti-backsliding requirements of the CWA.

3 Location and Type of Facility

The location of the treatment plant and the outfall 001 to Cranberry River are shown in Figure 1: Location Plan.

The latitude and longitude of the outfall is N 42° 13" 44.63", W 72° 00' 51.60".

The Town of Spencer Wastewater Treatment Plant (WWTP) is a secondary wastewater treatment facility located in Spencer, Massachusetts, with a design flow 1.08 million gallons per day (MGD) serving a population of about 5,000.

The Facility has a design flow of 1.08 MGD, the annual average daily flow reported in the 2011 application was 0.44 MGD and the average for the last 5 years has been 0.77 MGD. The system is a separate system with no combined sewers. Wastewater is comprised of mostly domestic sewage with some commercial sewage and some septage. There are no significant industrial users.

A quantitative description of the discharge in terms of effluent parameters, based on monitoring data submitted by the permittee from May 2011 through April 2016 is provided in Appendix A of this Fact Sheet.

3.1.1 Treatment Process

Wastewater enters the treatment plant through a 24-inch gravity sewer directly to the screening and grit removal facilities where it receives preliminary treatment to remove large solids and grit. Flow is pumped to the aeration basins for biological treatment, including nitrification. Following aeration, the biomass flows through a chemical feed manhole where alum and lime are introduced, as needed, to enhance phosphorus removal and adjust pH, respectively. The biomass and chemicals are blended in a rapid-mix box prior to flowing into the final clarifier. Settled solids are returned to the aeration tanks.

Clarifier effluent enters wetland beds for tertiary treatment and then is disinfected using ultraviolet radiation. The final effluent is aerated and replenished with dissolved oxygen as it flows down a cascade outfall to Cranberry River. A flow diagram of the Spencer WWTP is shown in **Figure 2**.

Waste sludge from the final clarifiers is thickened by gravity to approximately 7% solids, and then pumped to the sludge holding tank for temporary storage. The sludge is then trucked to the Woonsocket, Rhode Island incinerator run by Synagro.

A review of influent and effluent flow records reveals that the influent flow typically exceeds the effluent flow at the facility, indicating that a portion of the flow that enters the facility is lost in the wetland beds and is presumably infiltrating into the ground.

Figure 3, next page, summarizes the monthly average losses of effluent in the wetland beds at the WWTP, using data from May 2011 through April 2016. The loss of flow from the wetland system peaks in December at 70%, while in August the lost flow averages 48%.

The wetland beds were originally constructed as sand beds but, over time, vegetation grew in the beds creating a wetland type of environment. As part of the treatment plant upgrade completed in 1988, six of

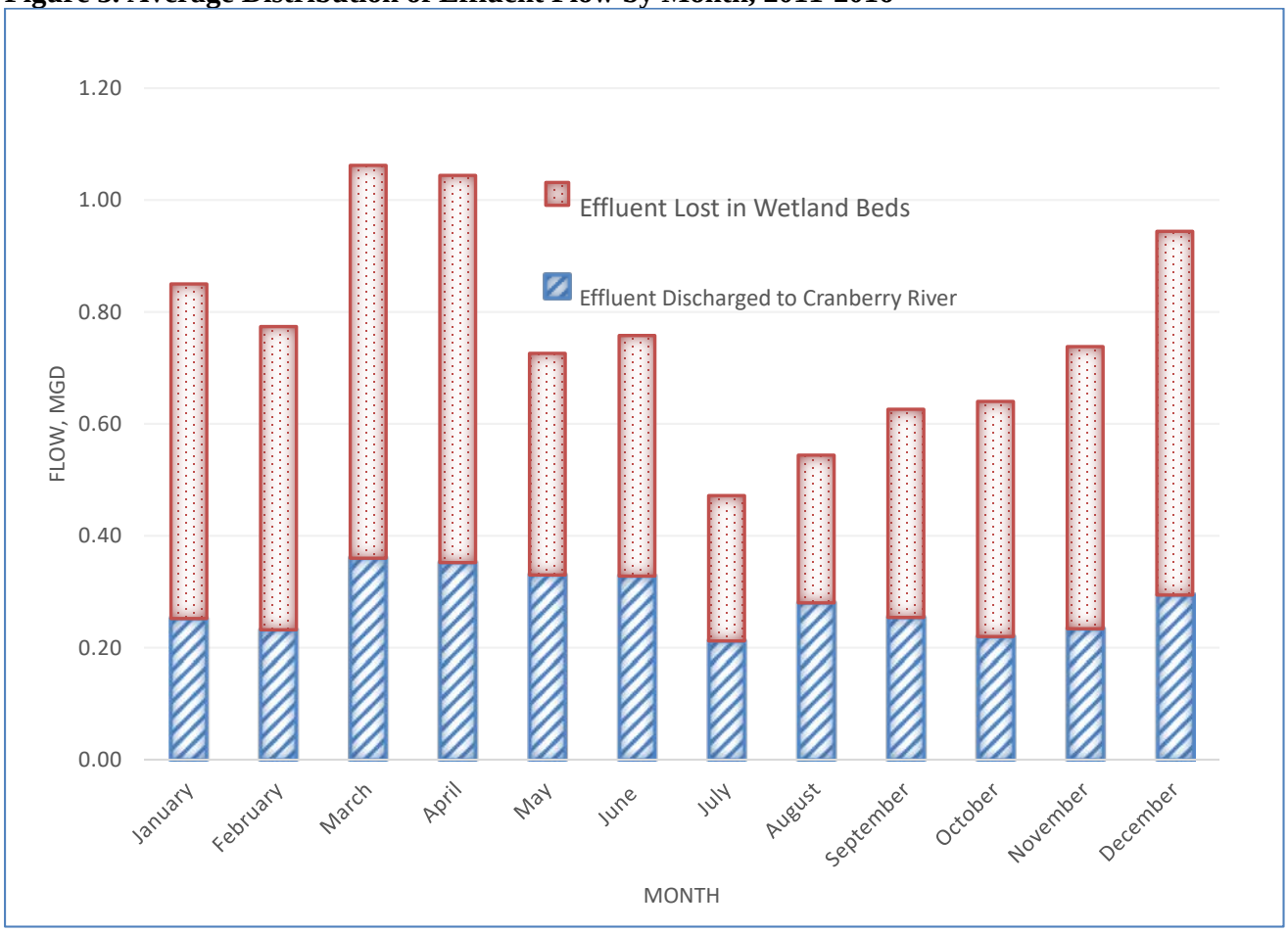
the beds, Bed C through Bed H, were converted into constructed wetlands by removing existing vegetation and the top layer of soil and installing inlet and outlet structures, underdrains, six inches of top sand and wetland vegetation. Four different types of vegetation were planted for phosphorus removal. Bed D and Bed F were planted with cattails and wool grass, Bed C and Bed E with reed grass, and Bed G and Bed H with reed canary grass. However, over time the specific vegetation of each of the beds has not been maintained. The wetland beds are utilized throughout the year and flow may be sent to one or more beds in a parallel flow configuration. There are no piped interconnections between beds.

3.1.2 Collection System

The wastewater collection system consists of 18.5 miles of interceptor and collector sewers that serve portions of the Town of Spencer. The West Main Street (Route 9) interceptor picks up flows from the other collectors and interceptor sewers, as well as the Meadow Road force main and conveys them to the wastewater treatment facility.

The Spencer WWTP is served by a separate sewer system. A separate sanitary sewer conveys domestic, industrial and commercial sewage, but not storm water. 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 a wastewater treatment plant and the storm sewers discharge to a local water body.

Figure 3. Average Distribution of Effluent Flow by Month, 2011-2016



4 Description of Receiving Water and Dilution

The Cranberry River is classified as a Class B Warm Water Fishery. The Massachusetts Surface Water Quality Standards (MA SWQS) at 314 CMR 4.05(3)(b) state that Class B waters shall have the following designated uses:

"These waters are designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value."

The Cranberry River segment receiving the Spencer WWTP effluent is listed in the Massachusetts Year 2014 Integrated List of Waters, Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303d of the Clean Water Act (2014 Integrated List) as attaining aesthetic, aquatic life, primary and secondary contact recreation uses.

While the Spencer WWTP does not discharge to an impaired water, it is subject to a waste load allocation for phosphorus as part of the Total Maximum Daily Load (TMDL) for total phosphorus for Quaboag & Quacumquasit Ponds[5], which lie downstream of the Spencer WWTP discharge. The draft permit accounts for loss of flow from Spencer WWTP's wetland treatment beds as part of the facility's waste load allocation, and in this way is consistent with the TMDL. Further information about the phosphorus limit in the draft permit is included in Section 5 of this Fact Sheet.

The limits in the draft permit are based on information in the application, the existing permit, discharge monitoring reports, and a site visit.

4.1 Available Dilution

The design flow of the facility is 1.08 MGD (1.67 cfs) and is unchanged since issuance of the 2007 permit.

Water quality based limitations are established with the use of a calculated available dilution. 314 CMR 4.03(3)(a) requires that effluent dilution be calculated based on the receiving water 7Q10.

4.1.1 7 Day, 10 Year Low Flow

The 7Q10 is the lowest observed mean river flow for 7 consecutive days, recorded over a 10-year recurrence interval.

Cranberry River does not have a permanent flow gage station, so the 7Q10 flow used in the draft permit has been extrapolated from flow data from the most recent 30 years at U.S. Geological Survey gage

[5] MassDEP, Total Maximum Daily Loads of Total Phosphorus for Quaboag & Quacumquasit Ponds, TMDL Final Report MA36130-2005-1, CN 216.1, May 16, 2006

station 01175670 (Sevenmile River near Spencer, MA). The gage is on the Sevenmile River upstream of the confluence with Cranberry River. This means that the drainage areas for the gage and for the Spencer WWTP outfall do not intersect.

EPA has decided to continue using this gage to estimate 7Q10 at the Spencer discharge because of the similarity in drainage areas between the two (8.81 sq.mi. and 6.52 sq.mi., respectively), similar topography and land uses, and their proximity. There are also two water supply wells near the Sevenmile River in Spencer and one near the Cranberry River. Because there is also a water supply well near Cranberry River, EPA considers the drainage areas qualitatively similar enough to use USGS 01175670 for this calculation.

> 7Q10 at USGS 01175670 - Sevenmile River near Spencer, MA 10/10/1986 – 10/10/2016 (30 years) = 0.165 cubic feet per second (cfs)
>
> Drainage Area = 8.81 square miles
>
> Flow factor for USGS 01175670 = 0.165 cfs / 8.81 square miles = 0.0187 cfs/sq. mi.
>
> Drainage Area at Spencer WWTP Outfall = 6.52 square miles

Using a low-flow factor of 0.0187 cfs per square mile yields a receiving water 7Q10 flow of about 0.122 cfs.

> 7Q10 upstream of Spencer WWTP Outfall = 0.0187 cfs/sq. mi x 6.52 sq. mi. = 0.122 cfs
>
> Spencer WWTP design flow = 1.08 MGD x 1.55 cfs/MGD = 1.67 cfs
>
> Dilution Factor = (Facility Flow + 7Q10)/Facility Flow
>
> Dilution Factor = (1.67 cfs + 0.122 cfs)/1.67 cfs = 1.07

5 Proposed Effluent Limitations and Conditions

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

5.1 Effluent Limitations and Monitoring Requirements

In addition to the State and Federal regulations described in Section 2, data submitted by the permittee in their permit application as well as in monthly discharge monitoring reports (DMRs) and in WET test reports from 2011 to 2016 were used to identify the pollutants of concern and to evaluate the discharge during the effluent limitations development process (*See* **Appendix A)**.

5.1.1 Wastewater Effluent Flow

The 2007 permit contains a flow limit of 1.08 MGD, equal to the design flow, expressed as a 12-month rolling average. Because a significant portion of wastewater flow is lost in the wetland beds before

reaching the outfall, the flow limit applies to the influent flow of the facility rather than the effluent flow. From May 2011 through April 2016, the range of 12-month average influent flow was from 0.62 MGD to 1.0 MGD, averaging 0.77 MGD. No violation of the 12-month rolling average flow limit occurred during the specified review period.

The Draft Permit continues the 1.08 MGD flow limit, based on influent flow, from the 2007 Permit. The Draft Permit requires that flow be measured continuously and that the rolling annual average flow, as well as the average monthly and maximum daily flow for each month be reported. The rolling annual average flow is calculated as the average of the flow for the reporting month and 11 previous months.

5.1.2 BOD5 and TSS

Under Section 301(b)(1)(B) of the CWA, POTWs had to achieve effluent limitations based on secondary treatment by July 1, 1977. The secondary treatment requirements for biochemical oxygen demand (BOD_5) and total suspended solids (TSS) are in 40 CFR § 133. The 30-day average percent removal limit of at least 85% for BOD5 and TSS is based on the requirements in 40 CFR § 133.102.

The BOD_5 and TSS limits from the 2007 permit are presented in Table 1. The warm weather limits are based on the 1981 Chicopee River Basin Water Quality Management Plan, which recommended monthly average limits of 10 mg/L for BOD_5 and TSS. The concentration limits were lowered to the current levels in 1993, when the Spencer WWTP design flow increased from 0.6 MGD to 1.08 MGD, to keep the average monthly mass loading constant to satisfy antidegradation requirements. The cold weather limits are based on secondary treatment requirements.

Table 1: Current BOD5 and TSS Limits

Date Range	Monthly Average	Weekly Average	Basis
May 1 – October 31	5.6 mg/L 50 lb/day	7.5 mg/L 68 lb/day	Water Quality
November 1 – April 30	30 mg/L 270 lb/day	45 mg/L 405 lb/day	Technology

From May 2011 through April 2016, there were two exceedances of the BOD_5 weekly average limits and one exceedance of the monthly average BOD_5 limit. There were no violations of the TSS limits.

The limits in the 2007 permit will be carried over to the draft permit. The mass limit calculations for BOD_5 and TSS are below, and are also the same as the 2007 permit. Monitoring frequency is once per week.

Mass limits: Flow x Concentration x Conversion Factor = lb/day
Warm weather monthly average limit: 1.08 MGD x 5.6 mg/L x 8.34(lb)(L)/(mg)(gal) = 50 lb/day
Warm weather weekly average limit: 1.08 MGD x 7.5 mg/L x 8.34(lb)(L)/(mg)(gal) = 68 lb/day
Cold weather monthly average limit: 1.08 MGD x 30 mg/L x 8.34(lb)(L)/(mg)(gal) = 270 lb/day
Cold weather weekly average limit: 1.08 MGD x 45 mg/L x 8.34(lb)(L)/(mg)(gal) = 405 lb/day

The draft permit requires that Spencer use its influent flow to calculate and report pollutant loadings rather than measured flow from Outfall 001.

5.1.3 Dissolved Oxygen (DO)

The 2007 Permit included a seasonal weekly DO monitoring requirement and a water quality-based effluent average monthly minimum limit of 6 mg/L. There were no violations of the dissolved oxygen limit from May 2011 through April 2016. In order to be consistent with the 1981 Chicopee River Basin Water Quality Management Plan the 6 mg/L DO limit is continued in the draft permit as a daily minimum with a weekly sampling requirement.

5.1.4 pH

The draft permit includes pH limitations that are required by state water quality standards and are at least as stringent as pH limitations set forth at 40 CFR § 133.102(c). The pH of the effluent shall not be less than 6.5 or greater than 8.3 standard units at any time. No violations of the pH limit occurred from May 2011 through April 2016. Monitoring frequency is once per day.

5.1.5 Ammonia Nitrogen

In addition to being a nutrient as a component of total nitrogen, nitrogen in the form of ammonia can reduce the receiving stream's dissolved oxygen concentration through nitrification and can be toxic to aquatic life, particularly at elevated temperatures. The toxicity level of ammonia depends on the temperature and pH of the receiving water (USEPA 1999).

The 1981 Chicopee River Basin Water Quality Management Plan recommended a monthly average limit of 1.0 mg/L for ammonia. That recommendation was lowered to 0.56 mg/L in 1993 when the Spencer WWTP design flow increased from 0.6 MGD to 1.08 MGD, to keep the average monthly mass loading constant to satisfy antidegradation requirements. The 2007 permit reflects this summer limit and also contains separate ammonia limits for November and the winter season (December 1 – April 30) to prevent instream toxicity in Cranberry River. See Table 2, below, for the ammonia nitrogen limits in the 2007 permit.

Table 2: Total ammonia nitrogen limits in the 2007 permit.

Season	Total Ammonia Nitrogen Mass Limits (lb/day)			Total Ammonia Nitrogen Concentration Limits (mg/L)		
	Monthly Average	Weekly Average[6]	Daily Max	Monthly Average	Weekly Average	Daily Max
May 1 – October 31	5.0	7.5	Report	0.56	0.84	Report
November 1 – November 30	76	----	----	8.5	----	----
December 1 – April 30	136	----	----	15.2	----	----

[6] Weekly average reported in the discharge monitoring reports and summarized in Appendix A is the maximum of the weekly averages measured each month.

5.1.5.1 Summer Ammonia Limits

The 2007 Permit includes warm weather (May 1 through October 31) seasonal ammonia limits that were established to address the need to reduce the oxygen demanding component of the nitrogen cycle and also reflect a need to reduce ammonia toxicity. As such, the 2007 permit includes monthly average limits of 0.56 mg/L and 5.0 lb/day and average weekly limits of 0.84 mg/L and 7.5 lb/day for ammonia-nitrogen during the warm weather period, defined as May 1 to October 31. These limits were initially established in the 1981 WLA[7].

Review of the April to October weekly concentration monitoring data in the DMRs from 2011 to 2016, provided in Appendix A, shows that in the summer the monthly average ammonia in the effluent averaged 0.11 mg/L (range 0.015 to 0.727 mg/L) and the reported monthly high weekly average[8] ammonia averaged 0.23 mg/L (range 0.015 to 1.575 mg/L). There were two violations of the 0.84 mg/L weekly average concentration limits, and one violation of the 0.56 mg/L monthly average concentration limit.

Review of the April to October weekly loading data in the DMRs from 2011 to 2016, provided in Appendix A, shows that in the summer the monthly average ammonia loading in the effluent averaged 0.26 lb/day (range 0.02 to 2.25 lb/day) and the reported monthly high weekly average ammonia loading averaged 0.61 lb/day (range 0.03 to 5.26 lb/day). From 2011 to 2016, there were no violations of the loading limits.

The applicable ammonia water quality criteria are pH and, for the chronic criteria, temperature dependent and can be derived using EPA-recommended ammonia criteria from the document: *Update of Ammonia Water Quality Criteria for Ammonia*, 1999 (EPA 822-R-99-014). These are the freshwater ammonia criteria in EPA's *National Recommended Water Quality Criteria*, 2002 (EPA 822-R-02-047) document, which are included by reference in the Massachusetts WQS (*See* 314 CMR 4.05(5)(e)). At pH of 7.0, average summer temperature of 24°C, and assuming salmonids present, the acute criterion is 24.1 mg/L and the chronic criterion is 3.21 mg/L. Since the effluent limits established by the 1981 WLA are less than the criteria, the effluent limits from the WLA will prevent the discharge from causing or contributing to a violation of the chronic and acute ammonia criteria.

The draft permit continues the summer ammonia effluent limits from the 2007 Permit as they are consistent with the WLA established for the receiving water and because they will not cause or contribute to a violation of the applicable ammonia criteria.

5.1.5.2 Winter Ammonia Limits

The 2007 Permit includes monthly average November limits of 8.5 mg/L and 76 lb/day. Review of the weekly monitoring data in the DMRs from 2011 to 2016, provided in Appendix A, shows that for November the monthly average ammonia in the effluent averaged 0.034 mg/L (range 0.015 to 0.07 mg/L) and the monthly average ammonia loading averaged 0.04 lb/day (range 0.01 to 0.8 lb/day).

The December 1 through April 30 ammonia-nitrogen effluent limits are 15.2 mg/L and 136 lb/day to address chronic toxicity. There is no weekly average or daily maximum effluent limit or monitoring

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[7] Massachusetts Department of Environmental Quality Engineering, *Chicopee River Basin Water Quality Management Plan*, 1981, page 40.
[8] The "weekly average" reported on the monthly DMRs is the highest of the weekly averages for that month.

requirement from November through April in the 2007 Permit. Review of the weekly monitoring data in the DMRs from 2011 to 2016, provided in Appendix A, shows that for December through April the monthly average ammonia in the effluent averaged 0.19 mg/L (range 0.015 to 1.438 mg/L) and the monthly average ammonia loading averaged 0.69 lb/day (range 0.01 to 6.78 lb/day).

At pH of 7.0, average winter temperature of 14°C, and assuming salmonids present, the acute and chronic ammonia criteria are 24.1 mg/L and 5.91 mg/L, respectively.

Chronic Ammonia-Nitrogen, Cold Weather

The November and December through April ammonia effluent limits were evaluated to ensure that they would continue to protect the aquatic life from ammonia toxicity during the cold season. Using a temperature of 0-14˚ Celsius, pH of 7.0, and the 1999 Update criteria document, the chronic cold weather water quality criterion is 5.91 mg/L.

The upstream ammonia value of 0.07 mg/L is the median value of ammonia concentrations in dilution water used in WET tests for the Spencer WWTP from May 2011 through April 2016.

As shown in the calculations on the next page, neither the November nor December through April ammonia limits are sufficiently protective of the receiving water. For simplicity and due to the similarity in conditions between November and the December through April seasons, the November-only ammonia limit has been dropped from the draft permit and replaced with one limit for November through April.

Using the chronic ammonia criterion (5.91 mg/L), 7Q10 flow information and upstream ammonia concentration, and the mass balance equation, solved for the allowable effluent limit concentration, C_d,

$$C_d = \frac{Q_r C_r - Q_s C_s}{Q_d} = \frac{\left[(1.79\ \text{cfs})\left(5.91\frac{\text{mg}}{\text{L}}\right) - (0.122\ \text{cfs})\left(0.07\frac{\text{mg}}{\text{L}}\right)\right]}{1.67\ \text{cfs}} = 6.3\ \text{mg/L}$$

results in a new monthly average winter season ammonia effluent limit of 6.3 mg/L. This limit will be applicable from November 1 to April 30.

Mass limit: Flow x Concentration x Conversion Factor = lb/day
Cold weather monthly average limit: 1.08 MGD x 6.3 mg/L x 8.34(lb)(L)/(mg)(gal) = 56.7 lb/day

These monthly average limits will be in effect from November through April of each year. Review of DMR data from the past 5 years shows that Spencer is already achieving effluent ammonia levels below 6.3 mg/L during the winter months. Given this performance history, the monitoring frequency will be twice per month. This is equal to the 2007 permit's monitoring frequency in November but decreased from the weekly monitoring frequency from November through April in the 2007 permit.

Downstream Ammonia Concentration
(December 1 – April 30)

$Q_RC_R = Q_DC_D + Q_SC_S$

Where

Q_R	=	Streamflow below outfall	=	1.79 cfs ($Q_D + Q_S$)
Q_D	=	Discharge flow	=	1.67 cfs
C_D	=	Discharge concentration	=	15.2 mg/L (current limit)
Q_S	=	Upstream flow	=	0.122 cfs (7Q10)
C_S	=	Upstream concentration	=	0.07 mg/L
C_R	=	Concentration below outfall		

Solving for downstream concentration,

$C_R = (Q_DC_D + Q_SC_S) /Q_S$

$$C_R = \frac{(1.67 \text{ cfs} \times 15.2 \text{ mg/L}) + (0.122 \text{ cfs} \times 0.07 \text{ mg/L})}{1.79 \text{ cfs}}$$

C_R = 14.1 mg/L, which is greater than 5.91 mg/L.

Downstream Ammonia Concentration
(November 1 – November 30)

$Q_RC_R = Q_DC_D + Q_SC_S$

Where

Q_R	=	Streamflow below outfall	=	1.79 cfs ($Q_D + Q_S$)
Q_D	=	Discharge flow	=	1.67 cfs
C_D	=	Discharge concentration	=	8.5 mg/L (current limit)
Q_S	=	Upstream flow	=	0.122 cfs (7Q10)
C_S	=	Upstream concentration	=	0.07 mg/L
C_R	=	Concentration below outfall		

Solving for downstream concentration,

$$C_R = (Q_DC_D + Q_SC_S) /Q_S$$

$$C_r = \frac{(1.67 \text{ cfs} \times 8.5 \text{ mg/L}) + 0.122 \text{ cfs} \times 0.07 \text{ mg/L})}{1.79 \text{ cfs}}$$

C_r = 7.93 mg/L, which is greater than 5.91 mg/L.

Acute Ammonia-Nitrogen, Cold Weather

The 2007 Permit does not include an effluent limit based on the acute criterion because, in previous permitting analyses, there was found to be no reasonable potential to cause or contribute to a violation of

the acute criteria in the winter.

Since the cold weather (November through April) monthly average effluent concentrations reported from 2011 through 2016 were less than 1 mg/L, it is unlikely that reasonable potential exists to violate the acute ammonia criterion of 24.1 mg/L during the winter months. A reporting requirement for maximum daily concentration has been added to the draft permit so that EPA can evaluate the need for an acute ammonia limit in the next permit.

5.1.6 Escherichia coli (*E. coli*)

The 2007 permit contains seasonal (April 1st through October 31st) *E. coli* limits of 126 colony-forming units per 100 milliliters of water (cfu/100 mL) as a monthly geometric mean and 669 cfu/100 mL as a daily maximum as well as a weekly monitoring requirement. From May 2011 through April 2016, there were no exceedances of the *E. coli* limits.

The *E. coli* limits for Outfall 001 proposed in the draft permit would also be in effect from April 1st through October 31st of each year, reflecting the seasonal recreational use of the receiving water. The proposed limits are 126 cfu/100 mL geometric monthly mean and 409 cfu/100 mL maximum daily value (this is the 90% distribution of the geometric mean of 126 cfu/100 mL). The past monitoring indicates that these limits would have been exceeded only once (April 2011) within the last five years. The proposed *E. coli* monitoring frequency in the draft permit continues the weekly monitoring requirement from the 2007 permit.

5.1.7 Total Nitrogen

Cranberry River is a tributary of the Sevenmile River, which is tributary to the Connecticut River. Excessive nitrogen loadings are causing significant water quality problems in Long Island Sound, including low dissolved oxygen. In December 2000, the Connecticut Department of Environmental Protection (CT DEP) completed a total maximum daily load (TMDL) for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL included a waste load allocation (WLA) for point sources and a load allocation (LA) for non-point sources. The point source WLA for out-of-basin sources (Massachusetts, New Hampshire and Vermont wastewater facilities discharging to the Connecticut, Housatonic and Thames River watersheds) requires an aggregate 25% reduction from the baseline total nitrogen loading estimated in the TMDL.

The baseline total nitrogen point source loadings estimated for the 2000 TMDL for the Connecticut, Housatonic, and Thames River watersheds were 21,672 lb/day, 3,286 lb/day, and 1,253 lb/day respectively (see **Table 3** on next page). The estimated current point source total nitrogen loadings for the Connecticut, Housatonic, and Thames Rivers respectively are 13,836 lb/day, 2,151 lb/day, and 1,015 lb/day, based on recent information and including all POTWs in the watershed.

Table 3 summarizes the estimated baseline loadings, TMDL target loadings, and estimated current loadings:

Table 3: Out-Of-Basin Loadings of Total Nitrogen

Basin	Baseline Loading[9] (lb/day)	TMDL Target[10] (lb/day)	Current Loading[11] (lb/day)
Connecticut River	21,672	16,254	13,836
Housatonic River	3,286	2,464	2,151
Thames River	1,253	940	1,015
Totals	26,211	19,657	17,002

The TMDL target of a 25% aggregate reduction from baseline loadings is currently being met using the discharges from all wastewater treatment plants as the estimate of all point source loadings. Further, the overall loading from MA, NH and VT wastewater treatment plants discharging to the Connecticut River watershed has been reduced by about 36%.

The estimated loading for the Spencer WWTP used in the above baseline analysis was 63.5 lb/day, based upon a total nitrogen concentration of 13.6 mg/L and the average flow of 0.56 MGD (13.6 mg/L * 0.56 MGD * 8.34), as indicated in the Facility's 2004 through 2005 DMRs. The 2004-2005 baseline analysis for the Spencer WWTP neglected the fact that some effluent flow is lost in the wetland beds rather than discharging through Outfall 001. A revised baseline analysis indicates a total nitrogen loading of 86.2 lb/day, using the average influent flow from 2011 through 2016, of 0.76 MGD (13.6 mg/L * 0.76 MGD * 8.34).

To ensure that the aggregate nitrogen loading from out-of-basin point sources does not exceed the TMDL target of a 25% reduction over 2004-2005 baseline loadings, EPA intends to include a permit condition for all existing treatment facilities in Massachusetts and New Hampshire that discharge to the Connecticut, Housatonic, and Thames River watersheds. The permit condition requires the permittees to evaluate alternative methods of operating their treatment plants to optimize the removal of nitrogen, and to describe previous and ongoing optimization efforts. Facilities not currently engaged in optimization efforts will also be required to implement optimization measures sufficient to ensure that their nitrogen loads do not increase above a benchmark from the 2004-2005 baseline, and that their aggregate 25% reduction is maintained or increased. Such a requirement has been included in this permit with a benchmark of 86.2 lbs/day to inform Spencer's optimization efforts. EPA also intends to work with the State of Vermont to ensure that similar requirements are included in its discharge permits.

Specifically, the draft permit requires an evaluation of alternative methods of operating the existing wastewater treatment facility to control total nitrogen levels, including, but not limited to, operational changes designed to enhance nitrification (seasonal and year-round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. This evaluation is required to be

[9] Estimated loading from TMDL (see Appendix 3 to CT DEP "Report on Nitrogen Loads to Long Island Sound", April 1998).
[10] Reduction of 25% from baseline loading.
[11] Estimated loading from 2004 – 2005 DMR data

completed and submitted to EPA and MassDEP within one year of the effective date of the permit, along with a description of past and ongoing optimization efforts. The permit also requires implementation of optimization methods, which will be evaluated based on the benchmark of 86.2 lbs/day to ensure that there is no increase in total nitrogen compared to the baseline average daily load. The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies, document the annual nitrogen discharge load from the facility to the wetland treatment units, and track trends relative to previous years. The draft permit includes a requirement for the facility to be operated in such a way that discharges of total nitrogen are minimized. The draft permit also includes average monthly and maximum daily reporting requirements for total nitrogen (TN), total Kjeldahl nitrogen (TKN), total nitrite/nitrate nitrogen (NO_2/NO_3).

Future Nitrogen Limits

EPA and state agencies continue to assess nitrogen loads to the Connecticut River and Long Island Sound and may incorporate total nitrogen limits in future permit modifications or reissuances as may be necessary to address increases in discharge loads, a revised TMDL, or other new information that may warrant the incorporation of numeric permit limits.

In December 2015, EPA signed a letter detailing an EPA nitrogen reduction strategy for waters in the Long Island Sound watershed. EPA's strategy recognizes that more work must be done to reduce nitrogen levels, further improve DO conditions, and attain other related water quality criteria necessary to meet designated aquatic life uses in Long Island Sound. EPA is working to establish thresholds for Western Long Island Sound and several coastal embayments, including the mouth of the Connecticut River. Documents regarding the EPA Nitrogen Reduction Strategy are available for public review on EPA's Long Island Sound website (http://longislandsoundstudy.net/issues-actions/water-quality/nitrogen-strategy/). EPA has identified the Connecticut Riverine System as the priority system in the Performance Work Statement (more information can be found at http://longislandsoundstudy.net/issues-actions/water-quality/nitrogen-strategy/). Upon completion of establishing thresholds, allocations of total nitrogen loadings will be made where further reductions are necessary. If further reductions are needed for the Spencer discharge, a water quality-based limit will be added in a future permit action. EPA is exploring possible trading approaches and more details will follow in the future as part of the permitting process.

Although not a permit requirement, EPA strongly recommends that permittees consider alternatives for further enhancing nitrogen reduction in their facility planning.

5.1.8 Total Phosphorus

5.1.8.1 Background and TMDL

While phosphorus is an essential nutrient for the growth of aquatic plants, it can stimulate rapid plant growth in freshwater ecosystems when it is present in high quantities. The excessive growth of aquatic plants and algae within freshwater systems negatively impacts water quality and can interfere with the attainment of designated uses by: 1) increasing oxygen demand within the water body to support an increase in both plant respiration and the biological breakdown of dead organic (plant) matter; 2) causing an unpleasant appearance and odor; 3) interfering with navigation and recreation; 4) reducing water clarity; 5) reducing the quality and availability of suitable habitat for aquatic life; 6) producing toxic cyanobacteria during certain algal blooms. Cultural (or accelerated) eutrophication is the term used to describe dense and excessive plant growth in a water body that results from nutrients entering the system

as a result of human activities. Discharges from municipal and industrial wastewater treatment plants, agriculture runoff, and stormwater are examples of human-derived (i.e. anthropogenic) sources of nutrients in surface waters.

The MA WQS under 314 CMR 4.05(5)(c) requires that, unless naturally occurring, surface waters must be free from nutrients that cause or contribute to impairment of the existing or designated uses, and the concentration of phosphorus may not exceed site specific criteria develop in a TMDL. Nutrients are also prohibited in concentrations that would cause or contribute to cultural eutrophication.

In the absence of numeric criteria for phosphorus, EPA uses nationally recommended criteria and other technical guidance to develop effluent limitations for the discharge of phosphorus. EPA has published national guidance documents that contain recommended total phosphorus criteria and other indicators of eutrophication. EPA's 1986 *Quality Criteria for Water* (the "Gold Book") recommends that in-stream phosphorus concentrations not exceed 0.05 mg/L in any stream entering a lake or reservoir, 0.1 mg/L for any stream not discharging directly to lakes or impoundments, and 0.025 mg/L within a lake or reservoir. For this segment of the Cranberry River, the 0.1 mg/L would apply downstream of the discharge.

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

EPA uses the effects-based Gold Book threshold as a general target applicable in free-flowing streams. As the Gold Book notes, there are natural conditions of a water body that can result in either increased or reduced eutrophication response to phosphorus inputs; in some waters more stringent phosphorus reductions may be needed, while in some others a higher total phosphorus threshold could be assimilated without inducing a eutrophic response. In this case, EPA is not aware of any evidence that Cranberry River is unusually susceptible to eutrophication impacts, so that the 100 µg/L (0.1 mg/L) threshold appears sufficient in this receiving water. EPA is not aware of evidence of factors that are reducing eutrophic response in Cranberry River downstream of the discharge.

To address the cultural eutrophication of Quaboag and Quacumquasit Ponds, which are downstream of the Spencer WWTP, MassDEP published the Total Maximum Daily Loads [TMDLs] of Phosphorus for Quaboag & Quacumquasit Pond in 2006. In accordance with Section 303(d) of the Clean Water Act, States are required to establish TMDLs for all listed waters where existing required pollution controls are not stringent enough to attain water quality standards. The TMDL must define the maximum amount of a pollutant load that a waterbody can receive and still attain water quality standards. Moreover, the TMDL must allocate the total allowable load to the contributing sources.

The technical analysis used in the development of the TMDL is based on extensive water quality monitoring of Quaboag and Quacumquasit Ponds and the tributary drainage areas, and the use of empirical loading and lake models. The monitoring data and technical analysis performed for the TMDL confirm that the pond is undergoing cultural eutrophication due to excessive phosphorus loading and that reductions in phosphorus loadings are needed. Phosphorus allocations were established for the Spencer

WWTP, permitted storm water sources including the Massachusetts Highway Department, and nonpoint sources in the watershed based on land cover categories (e.g. agriculture). The TMDL sets an overall allowable load of phosphorus for Quaboag Pond of 2,588 kg/yr or 7.09 kg/day. The wasteload allocation for the Spencer WWTP for the growing season represents approximately 5% of the allowable daily phosphorus load to the Pond.

The TMDL wasteload allocation for the Spencer WWTP is divided into two seasons. The allocation for the growing season from May 1 through October 31 is 0.79 lb/day, and for the winter season from November 1 through April 30 is 1.19 lb/day.

Table 4 summarizes the TMDL wasteload allocation for the Spencer WWTP, and

Table 5 presents the phosphorus permit limits in the 2007 permit.

Table 4: TMDL Phosphorus wasteload allocations (WLAs) for the Spencer WWTP.

Season	Allocation, lb/day	Average Outfall Flow, MGD (assumed)	Average Concentration, mg/L (calculated from allocation and flow)
Warm Weather (May 1 – October 31)	0.79	0.47	0.2
Cold Weather (November 1 – April 30)	1.19	0.47	0.3

5.1.8.2 Current Limits

The 2007 Permit includes a monthly average phosphorus limits as summarized in **Table 5**. Review of the weekly monitoring data in the DMRs from 2011 to 2016, provided in Appendix A, shows that in the warm months the monthly average total phosphorus in the effluent averaged 0.12 mg/L (range 0.06 to 0.27 mg/L) and in the cold months, the monthly average total phosphorus averaged 0.22 mg/L (range 0.06 to 0.54 mg/L).

Table 5: Total phosphorus limits and compliance record in 2007 permit.

Season	Limit	Number of Violations from May 2011 through December 2017
Warm Weather (May – October)	0.2 mg/L average monthly	10
	0.79 lb/day 6-month average	0
Cold Weather (November – April)	0.3 mg/L average monthly	0
	1.0 mg/L weekly average	0
	1.19 lb/day 6-month average	0

5.1.8.3 Draft Permit Limits

Recently, users and abutters of Quaboag and Quacumquasit Ponds have expressed concern that wastewater exfiltrating from the wetland beds is contributing to phosphorus loading to the two ponds, and that the TMDL does not account for this source, nor does the NPDES permit regulate it.

Federal regulations found at 40 CFR § 122.44(d) (1)(vii)(B) require that effluent limits developed to protect water quality be consistent with the assumption and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by EPA pursuant to 40 CFR § 130.7 (TMDLs and individual water quality-based effluent limitations).

The TMDL did not measure or account for exfiltration of wastewater from the Spencer WWTP. Rather, the TMDL assumed that all of the WLA for the Spencer WWTP emanates from the outfall. However, recent evidence indicates that the wetland beds also discharge to Cranberry River. The draft permit accounts for this exfiltration by applying the same seasonal WLAs from **Table 4** over the entire 1.08 MGD design flow rather than just the average outfall flow rate of 0.47 MGD. In this way, the total phosphorus limits in the draft permit are consistent with the TMDL by accounting for both the wastewater phosphorus load exfiltration from the wetland beds and the wastewater phosphorus load discharges through the outfall. As in the 2007 permit, the warm weather loading limit of 0.79 lb/day will be applied as a seasonal average calculated from May through October, and the cold weather loading limit of 1.19 lb/day will be applied as a seasonal average calculated from November through March.

In addition to the revised loading limits, the phosphorus effluent concentration limits have been modified in the draft permit. Given that the dilution factor is 1.07, the required effluent limit that would ensure attainment of an instream concentration of 100 µg/L under 7Q10 flow conditions and the treatment plant discharging at full treatment plant design flow is 0.10 mg/L. The draft permit proposes a water quality-based monthly average effluent limit of 0.10 mg/L for the warm months (May 1 – October 31) and proposes a 0.20 mg/L monthly average effluent limit during the cold weather months (November 1 – April 30).

The draft permit retains the monitoring frequency of three times per week from May through October and once per week from November through April. Although the load limits in the draft permit are unchanged from the 2007 permit, use of the influent flow to calculate the phosphorus load means that the limit is effectively more stringent. The Town of Spencer will need to make upgrades to the facility in order to meet this more stringent limit. It is understood that these upgrades will include removal of the constructed wetlands, and once the upgrades are complete, all effluent flow will be through the effluent pipe.

The Town of Spencer has applied to the Clean Water State Revolving Fund for financial assistance in upgrading the WWTP to meet the phosphorus limits in the draft permit. Securing funds from the program is a multi-year process that includes the completion of a Comprehensive Wastewater Management Plan (CWMP), conceptual design, and construction of upgrades. In addition, a preliminary affordability analysis found that the average household in Spencer spends 0.89% of median household income (MHI) on sewer fees. With the upgrades that are likely needed to meet the total phosphorus limit in the draft permit, the sewer fees could rise to 2.5% of MHI.

For this reason, the draft permit includes a compliance schedule through December 2024 to allow the facility to come into compliance with the new total phosphorus limits. See Part I.B.2. of the draft permit.

5.1.9 Metals

Certain metals in water can be toxic to aquatic life. The Clean Water Act requires EPA to limit toxic metal concentrations in the effluent when metal discharges may result in an exceedance of water quality criteria.

Metals may be present in both dissolved and particulate forms in the water column. However, extensive studies suggest that it is the dissolved fraction that is biologically available, and therefore presents the greatest risk of toxicity to aquatic life inhabiting the water column. This conclusion is widely accepted by the scientific community both within and outside of EPA.[12] As a result, water quality criteria are established in terms of dissolved metals.

However, many inorganic components of domestic wastewater, including metals, are in the particulate form. 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.[13] Consequently, quantifying only the dissolved fraction of metals in the effluent prior to discharge may not accurately reflect the biologically-available portion of metals in the receiving water. Regulations at 40 CFR § 122.45(c) require, with limited exceptions, that metals effluent limits in NPDES permits be expressed as total recoverable metals.

For metals with hardness-based water quality criteria, the criteria were determined using the equations in 2002 National Recommended Water Quality Criteria, using the appropriate factors for the individual metals (see **Table 6**). The downstream hardness was calculated to be 192.5 mg/L as $CaCO_3$, using a mass balance equation with the design flow, receiving water at 7Q10, an upstream median hardness of 32 mg/L as $CaCO_3$, and an effluent median hardness of 205 mg/L as $CaCO_3$.

[12] Water Quality Standards Handbook, Office of Water, EPA 823 B 17 001, 2017, Chapter 3.5, available at https://www.epa.gov/sites/production/files/2014-10/documents/handbook-chapter3.pdf, and Appendix J, available at https://www.epa.gov/sites/production/files/2014-10/documents/handbook-appendixj.pdf.
[13] The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion (USEPA 1996 [EPA-823-B96-007]), available at https://www3.epa.gov/npdes/pubs/metals_translator.pdf

Table 6: Parameters for Calculating Total Recoverable Metals Criteria.

Metal	Parameters				Total Recoverable Criteria	
	ma	ba	mc	bc	Acute Criteria (CMC) (µg/L)	Chronic Criteria (CCC) (µg/L)
Aluminum	—	—	—	—	750	87
Cadmium	1.0166	-3.9240	0.7409	-4.7190	4.15	0.44
Copper	0.9422	-1.7000	0.8545	-1.702	25.95	16.33
Lead	1.273	-1.46	1.273	-4.705	188	7.33
Nickel	0.846	2.255	0.846	0.0584	817.	90.8
Zinc	0.8473	0.884	0.8473	0.884	209.	209.

*Acute Criteria (CMC) = exp{ma*ln(hardness) + ba}
**Chronic Criteria (CCC) = exp{mc*ln(hardness) + bc}
Hardness = 192.5 mg/L

5.1.9.1 Copper Limit Evaluation

The 2007 permit contains effluent limits for total copper concentration of 10.3 µg/L average monthly and 15.3 µg/L maximum daily. After the Spencer WWTP failed to meet the limits, EPA issued an Administrative Order with an interim maximum daily limit of 20 µg/L on October 22, 2007.

EPA evaluated whether the copper limits in the 2007 permit are still protective of aquatic life. The recommended chronic criterion for total recoverable copper, at a hardness of 192.5 mg/L, is 16.3 µg/L, and the acute criterion is 26.0 µg/L. These revised criteria are based on an instream hardness of 192.5 mg/L, whereas the criteria in the 2007 permit are based on an instream hardness of 100 mg/L.

Because the limits in the 2007 permit are lower than the recalculated copper criteria, the current limits are still protective and have been carried forward into the draft permit.

5.1.9.2 Reasonable Potential Analysis for Aluminum, Cadmium, Lead, Nickel, and Zinc

The facility's effluent concentrations (from Appendix A) were characterized assuming a lognormal distribution in order to determine the estimated 95th percentile of the daily maximum.

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

$$Q_R C_R = Q_D C_D + Q_s C_s$$

rewritten as:

$$C_R = \frac{Q_D C_D + Q_S C_S}{Q_R}$$

where:

Q_D = effluent flow (design flow = 1.08 MGD = 1.67 cfs)
C_D = effluent metals concentration in µg/L (95th percentile)
Q_S = stream flow upstream (7Q10 upstream = 0.122 cfs)
C_S = background in-stream metals concentration in µg/L (median)
Q_R = resultant in-stream flow, after discharge ($Q_S + Q_D$ = 1.79 cfs)
C_R = resultant in-stream concentration in µg/L

Reasonable potential is then determined by comparing this resultant in-stream concentration (for both acute and chronic conditions) with the criteria for each metal. In EPA's Technical Support Document for Water Quality Based Toxics Control, EPA/505/2-90-001, March 1991, commonly known as the "TSD", box 3-2 describes the statistical approach in determining if there is reasonable potential for an excursion above the maximum allowable concentration (criteria). If there is reasonable potential (for either acute or chronic conditions), the appropriate limit is then calculated by rearranging the above mass balance to solve for the effluent concentration (C_D) using the criterion as the resultant in-stream concentration (C_R).

Table 7 summarizes the results of this analysis with respect to aluminum, cadmium, lead, nickel, and zinc. As can be seen from **Table 7**, there was no reasonable potential for any of these metals to cause or contribute to a violation of water quality criteria.

Table 7: Reasonable Potential Analysis for Metals

Metal	Qd	Cd (95th Percentile except where noted)	Qs	Cs (Median)	Qr = Qs + Qd	Cr = (QdCd+QsCs) /Qr	Criteria		Reasonable Potential	Limit = (QrCr-QsCs)/Qd	
	cfs	µg/L	cfs	µg/L	cfs	µg/L	Acute (µg/L)	Chronic (µg/L)	Cr > Criteria	Acute (µg/L)	Chronic (µg/L)
Aluminum	1.67	66.5	0.122	41.5	1.792	64.8	750	87	N	N/A	N/A
Cadmium		<0.5		<0.5		N/A	4.15	0.440	N	N/A	N/A
Lead		0.6		0		0.6	188	7.33	N	N/A	N/A
Nickel		9.4		4		9.0	817	90.8	N	N/A	N/A
Zinc		115.4		3.8		107.8	209	209	N	N/A	N/A

5.1.10 Whole Effluent Toxicity

National studies conducted by the EPA have demonstrated that domestic sources contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents, aromatic hydrocarbons, and others.

The draft permit includes acute and chronic effluent toxicity limitations and monitoring requirements. The limitations are based on the potential for toxicity from domestic contributions, water quality standards, and EPA regional policy. (*See*, e.g., "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants": 50 Fed. Reg. 30, 784 (July 24, 1985)).

The principal advantages of biological techniques include the ability to

(1) measure the effects of complex discharges of many known and unknown constituents by biological analyses,

(2) measure bioavailability of pollutants after discharge toxicity testing including any synergistic effects of pollutants, and

(3) address pollutants for which there are inadequate chemical analytical methods or criteria.

Therefore, the permit uses toxicity testing in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

The toxicity limits in the 2007 permit were established using the Massachusetts Implementation Policy for the Control of Toxic Pollutants in Surface Waters (MA Toxics Policy). The MA Toxics Policy requires that for discharges with dilution factors of 10 and under, the C-NOEC must equal or exceed the receiving water concentration (RWC) of the effluent, which is the inverse of the dilution factor.

From, May 2011 through April 2016, there were no violations of the WET test limit.

C-NOEC $\geq$ RWC = 1/dilution factor

= 1/1.07 = 0.93 (93%)

The draft permit carries forward the requirements for semiannual chronic and acute toxicity tests using the species *Ceriodaphnia dubia*. The acute toxicity endpoint, expressed as LC_{50}, must equal or exceed 100% effluent. The chronic toxicity endpoint, expressed as C-NOEC (no effect concentration), must equal or exceed 93% effluent. This limit has changed from the current C-NOEC limit due to a change in dilution factor for the Spencer WWTP. The tests must be performed in accordance with the test procedures and protocols specified in **Permit Attachment A**. The tests will be conducted twice each year, during the following months: February and August. Finally, the WET test DMR will contain fields for reporting of the dilution water chemical analysis in addition to the effluent chemical analysis.

The requirements for WET testing recently changed such that the modified acute toxicity test in the 2007 permit, which is conducted as part of the chronic toxicity test, is no longer used for compliance. Thus, the modified acute testing requirement is being replaced by a standalone acute toxicity test. The acute toxicity testing protocol is **Permit Attachment B**.

5.2 Industrial Pretreatment Program

The permittee does not have any major industries contributing industrial wastewater to the WWTP, and thus is not required to have a pretreatment program. There are two intermittent industrial users: (1) FLEXcon Company, consisting of heated non-contact process water and boiler blowdown which contributes an average of 540 gallons per day and (2) St. Joseph's Abbey Trappist Preserves, which contributes an average of 1,300 gallons per day cleaning water used in the preparation of jam and jellies. Both facilities have local limits imposed by the Spencer WWTP. 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.

5.3 Sludge Conditions

Spencer WWTP generates approximately 203 dry metric tons per year of sludge, which is trucked to Synagro in Woonsocket, Rhode Island for final treatment and incineration.

In February 1993, the EPA promulgated standards for the use and disposal of sewage sludge. The regulations were promulgated under the authority of § 405(d) of the CWA. Section 405(f) of the CWA requires that these regulations be implemented through permits. This permit is intended to implement the requirements set forth in the technical standards for the use and disposal of sewage sludge, commonly referred to as the Part 503 regulations.

Section 405(d) of the CWA requires that sludge conditions be included in all municipal permits. The sludge conditions in the draft permit satisfy this requirement and are taken from EPA's proposed Standards for the Disposal of Sewage Sludge to be codified at 40 CFR § 503 (February 19, 1993 - Volume 58, pp 9248-9415). These conditions are outlined in the draft permit.

5.4 Operation and Maintenance of the Collection System

The standard permit conditions for 'Proper Operation and Maintenance', found at 40 CFR § 122.41(e), require the proper operation and maintenance of permitted wastewater systems and related facilities to achieve permit conditions. The requirements at 40 CFR § 122.41(d) impose a 'duty to mitigate' upon the permittee, which requires that "all reasonable steps be taken to minimize or prevent any discharge violation of the permit that has a reasonable likelihood of adversity affecting human health or the environment. EPA and MassDEP maintain that an I/I removal program is an integral component of ensuring permit compliance with the requirements of the permit under the provisions at 40 CFR § 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.

Several of the requirements in the Draft Permit are not included in the 2007 Permit, including collection system mapping, and preparation of a collection system operation and maintenance plan. EPA has determined that these additional requirements are necessary to ensure the proper operation and maintenance of the collection system and has included schedules for completing these requirements in the Draft Permit.

5.5 Sanitary Sewer Overflows

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfall(s) listed in Part I.A.1.of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by the permit and shall be reported in accordance with Section I.H.8. of the draft permit (Twenty-four-hour reporting).

The Town of Spencer reported three SSOs during the 2007 permit term. **Table 8**, below, presents data reported for each overflow.

Table 8: Sanitary Sewer Overflows reported by the Town of Spencer from 2010 through 2016.

Date	Location	Volume (gallons)	Cause
1/25/2010	Influent screw pumps at WWTP	77,000	Rainfall
9/8/2011	Meadow Road Pump Station	39,500	Rainfall
4/8/2016	Tennessee gas substation off of Valley Street	36,000	Rainfall, possible blockage

The draft permit requires that notification of SSOs to MassDEP be made on its SSO Reporting Form (which includes MassDEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at https://www.mass.gov/how-to/sanitary-sewer-overflowbypassbackup-notification.

5.6 Standard Conditions

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

6 Federal Permitting Requirements

6.1 Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure 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) typically administers Section 7 consultations for bird, terrestrial, and freshwater aquatic species. The National Marine Fisheries Service (NMFS) typically administers Section 7 consultations for marine species and anadromous fish.

EPA has reviewed the federal endangered or threatened species of fish and wildlife to determine if any listed species might potentially be impacted by the re-issuance of this NPDES permit. The review revealed that two federally protected species, the small whirled pogonia orchid (*Isotria medeoloides*), and the Northern long-eared bat (*Myotis septentrionalis*). Neither of these species is aquatic; therefore, it is unlikely that either would come into contact with the facility discharge.

EPA is coordinating a review of this finding with USFWS and NMFS through the draft permit and Fact Sheet, and consultation under Section 7 of the ESA with USFWS and NMFS is not required.

6.2 Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Services (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes; may adversely impact any essential fish habitat as: waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. § 1802 (10)). Adversely impact means any impact which reduces the quality and/or quantity of EFH (50 CFR § 600.910 (a)). Adverse effects may include direct (e.g., contamination or physical disruption); indirect (e.g., loss of prey; reduction in species' fecundity); site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Essential fish habitat (EFH) is only designated for species for which federal fisheries management plans exist (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 available EFH information indicates that Cranberry River is not designated EFH for any federally managed species. Therefore, consultation with NMFS is not required. If any adverse effects are detected as a result of this permit action, NMFS will be notified and an EFH consultation will promptly be initiated. During the public comment period, EPA has provided a copy of the draft permit and Fact Sheet to NMFS.

7 Public Comments, Hearing Requests and Permit Appeals

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Robin Johnson, U.S. EPA, Office of Ecosystem Protection, Municipal Permits Branch, 5 Post Office Square, Suite 100 (OEP06-1), Boston, Massachusetts 02109-3912 or via email to johnson.robin@epa.gov.

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

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision, forward a copy of the final decision to the applicant, and provide a copy or notice of availability of the final decision to each person who has submitted written comments or requested notice. Within 30 days following the notice of the Final Permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 CFR § 124.19 and/or submit a request for an adjudicatory hearing to MassDEP's Office of Appeals and Dispute Resolution consistent with 310 CMR 1.00.

8 EPA & MassDEP Contacts

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Robin L. Johnson
EPA New England – Region 1
5 Post Office Square, Suite 100
Mail Code OEP06-1
Boston, MA 02109-3912
Telephone: (617) 918-1045 FAX: (617) 918-0045
Johnson.Robin@epa.gov

Claire A. Golden
Massachusetts Department of Environmental Protection
205B Lowell Street
Wilmington, Massachusetts 01887
Telephone: 978-694-3244 FAX: 978-694-3498
claire.golden@state.ma.us

_____2/13/2018_____
Date

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

Scale 1 : 12,000

0 1,000 Feet

Regulated Facilities: EPA

FIGURE 1
Location Map
Spencer Wastewater Treatment Plant
Spencer, MA

EPA

6/14/2016

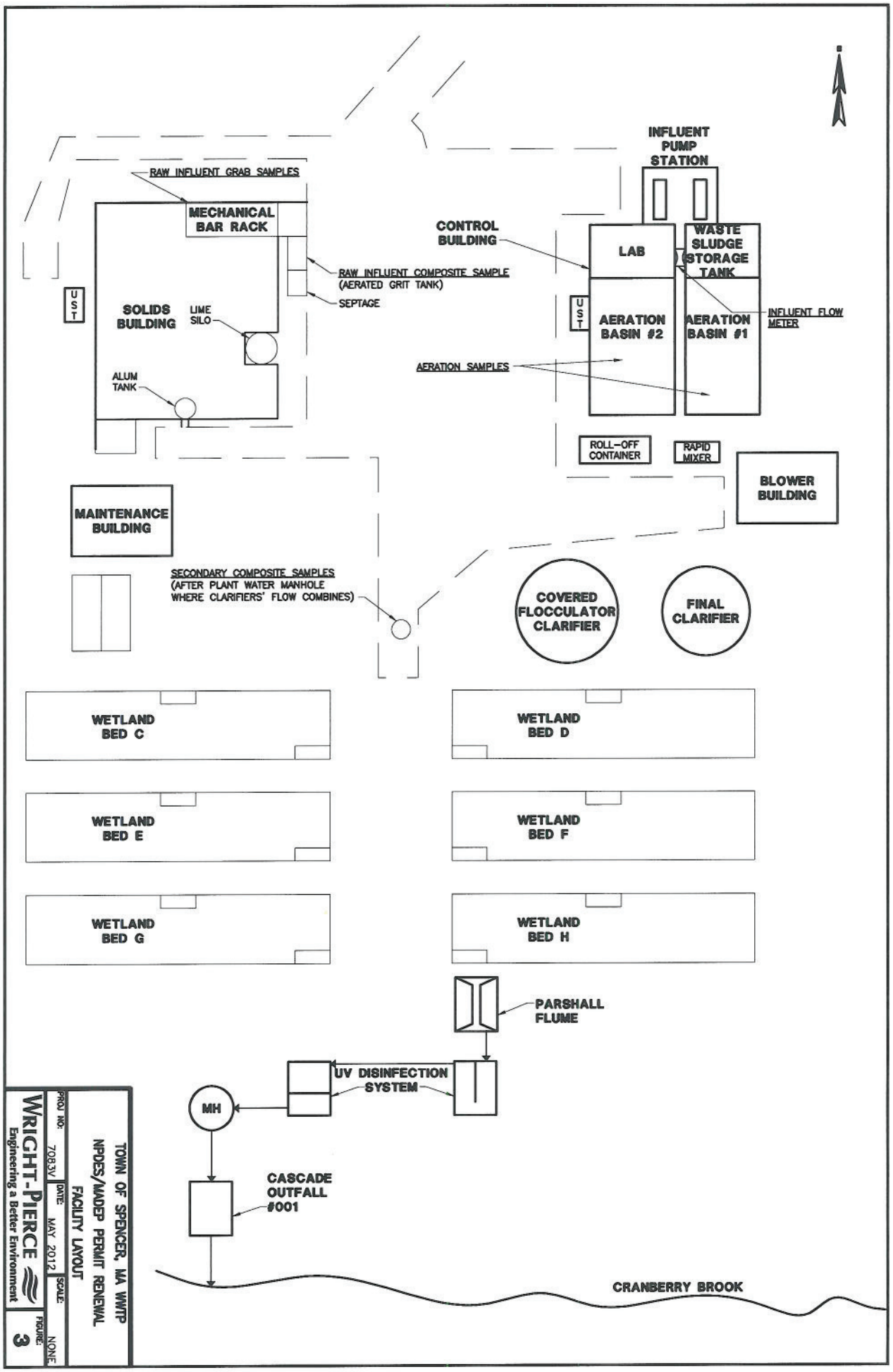

Figure 2 - Process Diagram

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APPENDIX A - Discharge Monitoring Report Summary
Flow

Shaded cells indicate permit limit exceedances.	Influent Flow, MGD			Effluent Flow Rate, MGD		
	Daily Max	Monthly avg	12-month avg	Daily Max	Monthly Avg	12-month avg
5/31/2011	0.99	0.77	0.77	0.6	0.47	0.38
6/30/2011	1.35	0.67	0.78	0.93	0.4	0.39
7/31/2011	0.68	0.47	0.78	0.49	0.3	0.39
8/31/2011	6.44	0.87	0.82	1.98	0.46	0.41
9/30/2011	4.7	1.15	0.88	2.11	0.5	0.44
10/31/2011	1.18	0.89	0.9	0.35	0.27	0.44
11/30/2011	1.58	1.18	0.94	0.39	0.34	0.44
12/31/2011	2.33	1.22	0.97	0.51	0.34	0.44
1/31/2012	1.34	0.92	1	0.35	0.22	0.46
2/29/2012	0.91	0.71	1	0.25	0.15	0.46
3/31/2012	1.02	0.75	0.8	0.42	0.24	0.31
4/30/2012	1.04	0.61	0.85	0.54	0.24	0.33
5/31/2012	0.84	0.61	0.84	0.5	0.29	0.31
6/30/2012	0.79	0.55	0.83	0.43	0.27	0.3
7/31/2012	0.8	0.36	0.82	0.52	0.17	0.29
8/31/2012	0.85	0.47	0.78	0.48	0.18	0.27
9/30/2012	0.76	0.49	0.73	0.25	0.13	0.24
10/31/2012	1.32	0.64	0.71	0.88	0.21	0.23
11/30/2012	0.92	0.71	0.67	0.55	0.25	0.22
12/31/2012	1.46	0.074	0.63	0.59	0.26	0.22
1/31/2013	1.28	0.81	0.62	0.6	0.28	0.22
2/28/2013	2.27	0.89	0.64	1.02	0.34	0.24
3/31/2013	2.92	1.27	0.68	1.55	0.48	0.26
4/30/2013	1.11	0.76	0.69	0.23	0.14	0.29
5/31/2013	1.43	0.7	0.7	1.47	0.39	0.26
6/30/2013	3.28	1.44	0.77	2.14	0.57	0.28
7/31/2013	0.78	0.55	0.79	0.38	0.19	0.29
8/31/2013	1.16	0.51	0.79	0.53	0.23	0.29
9/30/2013	1.12	0.56	0.8	0.68	0.18	0.29
10/31/2013	0.61	0.5	0.79	0.22	0.14	0.29
11/30/2013	1.13	0.53	0.77	0.34	0.11	0.28
12/31/2013	1.4	0.76	0.78	0.57	0.24	0.27
1/31/2014	1.51	0.92	0.78	0.65	0.35	0.28
2/28/2014	0.88	0.64	0.76	0.29	0.17	0.27
3/31/2014	3.57	1.16	0.75	2.71	0.42	0.26
4/30/2014	2.51	1.41	0.81	1.65	0.55	0.29

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	Daily Max	Monthly avg	12-month avg	Daily Max	Monthly Avg	12-month avg
5/31/2014	2.17	1	0.83	0.71	0.26	0.28
6/30/2014	0.69	0.56	0.76	0.21	0.1	0.24
7/31/2014	0.72	0.49	0.75	0.35	0.25	0.25
8/31/2014	0.96	0.45	0.75	0.58	0.29	0.25
9/30/2014	0.74	0.52	0.75	0.47	0.33	0.27
10/31/2014	1.42	0.67	0.76	0.52	0.33	0.28
11/30/2014	1.1	0.73	0.78	0.54	0.32	0.3
12/31/2014	2.51	1.32	0.82	1.45	0.5	0.32
1/31/2015	1.41	0.75	0.81	0.41	0.19	0.31
2/28/2015	0.62	0.53	0.8	0.16	0.12	0.3
3/31/2015	2.04	1.04	0.79	0.57	0.3	0.3
4/30/2015	2.66	1.41	0.79	1.39	0.51	0.29
5/31/2015	0.77	0.55	0.75	0.39	0.24	0.29
6/30/2015	0.85	0.57	0.75	0.58	0.3	0.31
7/31/2015	0.67	0.49	0.75	0.37	0.15	0.3
8/31/2015	0.54	0.42	0.75	0.43	0.24	0.3
9/30/2015	0.81	0.41	0.74	0.23	0.13	0.28
10/31/2015	0.65	0.5	0.73	0.19	0.15	0.26
11/30/2015	0.68	0.54	0.71	0.22	0.15	0.25
12/31/2015	0.94	0.68	0.68	0.33	0.13	0.22
1/31/2016	1.46	0.85	0.67	0.46	0.22	0.22
2/29/2016	2.21	1.1	0.71	0.83	0.38	0.38
3/31/2016	1.37	1.09	0.72	0.56	0.36	0.25
4/30/2016	1.7	1.03	0.69	0.86	0.32	0.23
Average	1.47	0.75	0.77	0.68	0.28	0.30
Min	0.54	0.074	0.62	0.16	0.1	0.22
Max	6.44	1.44	1	2.71	0.57	0.46
Limit	No limit	No limit	1.08	No limit	No limit	No limit

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BOD, TSS, pH, Copper

Shaded cells indicate permit limit exceedances.	BOD, mg/L			BOD, lbs/day			BOD, % avg
	Monthly avg	Weekly Avg	Daily Max	Monthly Avg	Weekly Avg	Daily Max	Monthy avg
5/31/2011	1.4	2.1	2.1	5.6	8.1	8.1	99.4
6/30/2011	1.2	1.6	1.6	4.1	7.1	7.1	99.5
7/31/2011	1	1.2	1.2	2.4	2.8	2.8	99.6
8/31/2011	3.2	3.8	3.8	11	19.6	19.6	98.7
9/30/2011	1.3	1.8	1.8	4.2	7.7	7.7	99.3
10/31/2011	2.8	4.6	4.6	6.4	12.3	12.3	98.8
11/30/2011	2.4	2.9	2.9	7	9.2	9.2	98.9
12/31/2011	1.8	2.8	2.8	4.9	6.3	6.3	99.2
1/31/2012	2.3	3.3	3.3	4	6.3	6.3	99.1
2/29/2012	2.4	3.1	3.1	3	4.2	4.2	99.3
3/31/2012	2.6	3.1	3.1	5.4	7.2	7.2	99.3
4/30/2012	3.2	3.7	3.7	6.1	7.8	7.8	99
5/31/2012	2	2.3	2.3	4.8	5.5	5.5	99.2
6/30/2012	2	2.3	2.3	4.6	6	6	99.4
7/31/2012	2.9	3.1	3.1	3.3	4.4	4.4	99.2
8/31/2012	2.9	3.9	3.9	4.7	10.7	10.7	99.1
9/30/2012	1.7	2	2	2.5	3.1	3.1	99.5
10/31/2012	1.5	1.7	1.7	3.1	7.1	7.1	99.4
11/30/2012	2.1	2.8	2.8	3.8	5.3	5.3	99.2
12/31/2012	1.9	2.1	2.1	3.9	6.7	6.7	99.3
1/31/2013	2	2.5	2.5	4.5	8.1	8.1	98.8
2/28/2013	2.6	3.1	3.1	10.1	24.3	24.3	98.4
3/31/2013	2.6	2.9	2.9	6.9	9.9	9.9	97.8
4/30/2013	2.8	3.6	3.6	3.4	4.3	4.3	98.8
5/31/2013	2.8	3.6	3.6	6.3	12.5	12.5	99.1
6/30/2013	2.3	3.1	3.1	14.1	23.3	23.3	99
7/31/2013	3.3	4.1	4.1	5.2	6.8	6.8	98.6
8/31/2013	2.7	3.3	3.3	4.4	5.8	5.8	99.1
9/30/2013	3.9	5.6	5.6	5.1	6.5	6.5	98.3
10/31/2013	3.3	4.3	4.3	3.7	5.3	5.3	99.2
11/30/2013	2.6	2.9	2.9	2.6	4.1	4.1	99.2
12/31/2013	2.6	2.8	2.8	4.2	7.9	7.9	99

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	Monthly avg	Weekly Avg	Daily Max	Monthly Avg	Weekly Avg	Daily Max	Monthy avg
1/31/2014	2.2	2.5	2.5	7	13.6	13.6	98.5
2/28/2014	2.4	2.6	2.6	3	4	4	98.9
3/31/2014	2.5	2.8	2.8	6.8	9.5	9.5	98.4
4/30/2014	6.2	8.1	8.1	32.2	41.6	41.6	95.5
5/31/2014	5.5	7.3	7.3	10.7	15.2	15.2	98.3
6/30/2014	3.6	4.6	4.6	3	4.6	4.6	98.9
7/31/2014	2.2	2.9	2.9	4.8	6	6	99.1
8/31/2014	1.9	2.8	2.8	5.5	10.3	10.3	99.3
9/30/2014	1.7	2.3	2.3	4.4	5.9	5.9	99.5
10/31/2014	1.2	1.3	1.3	3.4	3.8	3.8	99.6
11/30/2014	1.9	2.8	2.8	5.1	7.7	7.7	99.2
12/31/2014	2.2	2.6	2.6	13.3	31.4	32.4	98.6
1/31/2015	3.4	4.1	4.1	5.5	8.8	8.8	98.3
2/28/2015	2.3	4.8	4.8	2.5	5.2	5.2	99.1
3/31/2015	1.7	2.1	2.1	2.7	3.9	3.9	99
4/30/2015	2.6	3.7	3.7	9	12.3	12.3	98
5/31/2015	4.7	5.5	5.5	9.5	13.8	13.8	98.1
6/30/2015	2.4	5.1	5.1	5.9	13.6	13.6	98.9
7/31/2015	4.2	4.9	4.9	4	4.9	4.9	98.5
8/31/2015	1.7	2	2	3.6	4.8	4.8	99.4
9/30/2015	4.2	8.3	8.3	4.6	7.6	7.6	98.7
10/31/2015	1.4	1.9	1.9	1.7	2.4	2.4	99.5
11/30/2015	1.8	3.1	3.1	2.3	4.1	4.1	99.4
12/31/2015	2.9	4.1	4.1	3.2	6.2	6.2	98.8
1/31/2016	2.5	3.5	3.5	4.2	7.2	7.2	98.6
2/29/2016	2.9	4.7	4.7	10.8	25.1	25.1	98.6
3/31/2016	2.4	3	3	7.4	10.7	10.7	98.5
4/30/2016	3.5	4.4	4.4	8.4	14.7	14.7	98.1
Average	2.57	3.40	3.40	5.83	9.42	9.44	98.88
Min	1	1.2	1.2	1.7	2.4	2.4	95.5
Max	6.2	8.3	8.3	32.2	41.6	41.6	99.6
Limit	5.6	7.5	No limit	50	68	No limit	85

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Shaded cells indicate permit limit exceedances.	TSS, mg/L			TSS, lbs/day			TSS, % avg	pH		Copper, Total Recoverable, µg/L	
	Monthly avg	Weekly Avg	Daily Max	Monthly avg	Weekly Avg	Daily Max	Monthly avg	Min	Max	Monthly Avg	Daily Max
5/31/2011	1.1	2.1	2.1	1.1	7.4	7.4	99.7	6.9	7.2	30	30
6/30/2011	0.9	1.2	1.2	0.9	5.3	5.3	99.8	6.9	7.2	15	15
7/31/2011	0.9	1.9	1.9	0.9	4.4	4.4	99.8	6.9	7.1	14	14
8/31/2011	1.4	1.9	1.9	1.4	6.3	6.3	99.5	6.8	7.2	26	26
9/30/2011	0.9	1.7	1.7	0.9	4.3	4.3	99.6	6.9	7.1	26	26
10/31/2011	1.3	1.9	1.9	1.3	4.8	4.8	99.5	7	7.3	14	14
11/30/2011	1.5	2.8	2.8	4.6	8.9	8.9	99.4	7	7.2	10	10
12/31/2011	0.3	0.4	0.4	0.9	1.3	1.3	99.9	7.1	7.3	12	12
1/31/2012	1.6	3	3	2.6	4.5	4.5	99.4	7.1	7.4	12	12
2/29/2012	0.8	1.4	1.4	0.9	1.5	1.5	99.8	6.9	7.4	16	16
3/31/2012	1	1.4	1.4	2.1	2.5	2.5	99.7	7	7.3	17	17
4/30/2012	2.3	5.6	5.6	5.2	14.5	14.5	99.6	7.1	7.3	17	17
5/31/2012	0.3	0.6	0.6	0.3	1.6	1.6	99.9	6.8	7.1	15	15
6/30/2012	0.8	1.8	1.8	0.8	5.1	5.1	99.8	6.9	7.2	15	15
7/31/2012	0.9	1.1	1.1	0.9	1.6	1.6	99.8	6.8	7.2	21	21
8/31/2012	0.7	1.3	1.3	0.7	2.2	2.2	99.8	6.9	7.3	24	24
9/30/2012	0.7	1	1	0.7	2.1	2.1	99.9	6.8	7.3	19	19
10/31/2012	0.5	1.2	1.2	0.5	2.5	2.5	99.9	7	7.3	13	13
11/30/2012	0.9	1.1	1.1	1.8	2	2	99.8	7	7.2	11	11
12/31/2012	0.7	1.1	1.1	1.4	2.6	2.6	99.9	7	7.2	14	14
1/31/2013	0.7	1.4	1.4	1.5	3	3	99.7	7	7.3	9	9
2/28/2013	0.9	1.4	1.4	3.3	7.1	7.1	99.4	6.9	7.3	11	11
3/31/2013	0.7	1.4	1.4	5.3	18.1	18.1	99.5	6.9	7.1	10	10
4/30/2013	0.3	0.7	0.7	0.4	0.9	0.9	99.9	6.9	7.2	30	30
5/31/2013	0.3	0.6	0.6	0.3	3.4	3.4	99.9	6.6	7.2	25	25
6/30/2013	1.4	1.8	1.8	1.4	13.5	13.5	99.3	6.8	7.3	12	12
7/31/2013	1.7	2.2	2.2	1.7	3.6	3.6	99.6	7	7.4	6	6
8/31/2013	1.2	2	2	1.2	3.7	3.7	99.8	7.1	7.8	3	3
9/30/2013	0.9	1.3	1.3	0.9	1.7	1.7	99.7	7	7.5	5	5
10/31/2013	1.7	2.2	2.2	1.7	2.9	2.9	99.7	6.8	7.6	8	8
11/30/2013	0.9	1.6	1.6	0.7	1.1	1.1	99.8	6.8	7.2	18	18
12/31/2013	0.5	1.7	1.7	0.7	2	2	99.8	6.7	7.3	19	19

NPDES Draft Permit No. MA0100919
Spencer WWTF
APPENDIX A - Discharge Monitoring Report Summary
BOD, TSS, pH, Copper

Shaded cells indicate permit limit exceedances.	TSS, mg/L			TSS, lbs/day			TSS, % avg	pH		Copper, Total Recoverable, µg/L	
	Monthly avg	Weekly Avg	Daily Max	Monthly avg	Weekly Avg	Daily Max	Monthly avg	Min	Max	Monthly Avg	Daily Max
1/31/2014	0.7	1.3	1.3	2.2	6.5	6.5	99.5	6.7	7.2	19	19
2/28/2014	0.9	1.2	1.2	1.2	1.7	1.7	99.7	6.5	7.1	15	15
3/31/2014	0.6	1.1	1.1	1.8	3.9	3.9	99.7	6.8	7.1	35	35
4/30/2014	2.9	4.2	4.2	15.4	24.3	24.3	98.4	6.7	7.1	8	8
5/31/2014	2.7	4.1	4.1	2.7	6.7	6.7	99.4	6.6	7.1	11	11
6/30/2014	1.7	3.3	3.3	1.7	2.2	2.2	99.6	6.6	7.1	9	9
7/31/2014	0.4	0.8	0.8	0.4	2.1	2.1	99.9	6.6	7.3	25	25
8/31/2014	1.2	1.7	1.7	1.2	6.2	6.2	99.7	6.7	7.2	20	20
9/30/2014	0.6	1.2	1.2	0.6	3.1	3.1	99.9	6.9	7.2	16	16
10/31/2014	0.5	1	1	0.5	3.4	3.4	99.9	6.9	7.2	19	19
11/30/2014	0.7	1.1	1.1	1.9	2.7	2.7	99.7	7	7.2	13	13
12/31/2014	1.2	1.6	1.6	7.7	19.3	19.3	99.1	6.7	7	19	19
1/31/2015	1.5	2.6	2.6	2.6	5.2	5.2	99.3	6.8	7.1	12	12
2/28/2015	0.8	1	1	0.9	1.3	1.3	99.7	6.9	7.1	28	28
3/31/2015	1	1.2	1.2	1.8	3.2	3.2	99.5	6.8	7.2	34	34
4/30/2015	2.3	3.6	3.6	8.4	12	12	98.6	6.8	7	10	10
5/31/2015	1.9	3.6	3.6	1.9	9	9	99.5	6.7	7.2	7	7
6/30/2015	0.9	2.1	2.1	0.9	5.6	5.6	99.7	6.7	7.1	23	23
7/31/2015	1.3	1.9	1.9	1.3	1.3	1.3	99.7	6.8	7.3	9	9
8/31/2015	1.5	2.3	2.3	1.5	5	5	99.7	6.8	7	39	39
9/30/2015	2	4	4	2	4	4	99.6	6.8	7.2	23	23
10/31/2015	1	1.2	1.2	1	1.5	1.5	99.8	6.7	7.1	29	31
11/30/2015	0.8	1.1	1.1	1	1.3	1.3	99.9	6.7	7.1	25	25
12/31/2015	0.7	1.2	1.2	0.7	1.8	1.8	99.8	6.9	7.2	18	18
1/31/2016	0.3	0.4	0.4	0.5	0.8	0.8	99.8	6.9	7.1	18	18
2/29/2016	1.4	2.2	2.2	3.8	8	8	99.2	6.8	7.1	26	26
3/31/2016	0.9	2	2	2.6	4.7	4.7	99.3	6.7	7.2	14	14
4/30/2016	0.6	0.7	0.7	1.1	2.1	2.1	99.7	6.8	7.2	5	5
Average	1.06	1.78	1.78	1.97	4.92	4.92	99.63	6.84	7.22	17.10	17.13
Min	0.3	0.4	0.4	0.3	0.8	0.8	98.4	6.5	7	3	3
Max	2.9	5.6	5.6	15.4	24.3	24.3	99.9	7.1	7.8	39	39
Limit	5.6	7.5	No limit	50	68	No limit	85	6.5	8.3	25	30

NPDES Draft Permit No. MA0100919 (Spencer WWTF)
APPENDIX A - Discharge Monitoring Report Summary
Summer Ammonia

	Nitrogen, ammonia as total, mg/L			Nitrogen, ammonia as total, lbs/day		
Shaded cells indicate permit limit exceedances.	Monthly Average	Weekly Average	Daily Max	Monthly Average	Weekly Average	Daily Max
5/31/2011	0.5	1.13	1.65	2.25	5.26	7.57
6/30/2011	0.08	0.14	0.14	0.25	0.36	0.36
7/31/2011	0.07	0.08	0.08	0.17	0.19	0.19
8/31/2011	0.05	0.11	0.11	0.32	1.19	1.19
9/30/2011	0.05	0.11	0.11	0.15	0.28	0.28
10/31/2011	0.07	0.09	0.09	0.16	0.23	0.23
5/31/2012	0.022	0.04	0.042	0.05	0.08	0.08
6/30/2012	0.11	0.28	0.28	0.31	0.84	0.84
7/31/2012	0.05	0.1	0.1	0.07	0.12	0.12
8/31/2012	0.016	0.018	0.019	0.02	0.03	0.03
9/30/2012	0.021	0.035	0.035	0.02	0.03	0.03
10/31/2012	0.03	0.046	0.046	0.06	0.14	0.14
5/31/2013	0.03	0.05	0.05	0.08	0.26	0.26
6/30/2013	0.044	0.072	0.072	0.19	0.36	0.36
7/31/2013	0.16	0.37	0.37	0.21	0.4	0.4
8/31/2013	0.22	0.68	0.68	0.4	1.26	1.26
9/30/2013	0.17	0.64	0.64	0.27	0.69	0.69
10/31/2013	0.04	0.06	0.06	0.05	0.1	0.1
5/31/2014	0.208	0.389	0.389	0.45	0.81	0.81
6/30/2014	0.167	0.18	0.291	0.15	0.25	0.25
7/31/2014	0.015	0.015	0.015	0.03	0.04	0.04
8/31/2014	0.015	0.015	0.016	0.03	0.04	0.04
9/30/2014	0.049	0.182	0.182	0.14	0.49	0.49
10/31/2014	0.016	0.018	0.018	0.04	0.06	0.06
5/31/2015	0.727	1.575	1.68	1.43	4.01	4.34
6/30/2015	0.093	0.199	0.199	0.2	0.25	0.25
7/31/2015	0.143	0.18	0.18	0.16	0.23	0.23
8/31/2015	0.037	0.082	0.082	0.1	0.2	0.2
9/30/2015	0.046	0.094	0.094	0.05	0.05	0.09
10/31/2015	0.029	0.029	0.03	0.03	0.169	0.021
Average	0.11	0.23	0.26	0.26	0.61	0.70
Min	0.015	0.015	0.015	0.02	0.03	0.021
Max	0.727	1.575	1.68	2.25	5.26	7.57
Limit	0.56	0.84	No limit	5	7.5	No limit

NPDES Draft Permit No. MA0100919
Spencer WWTF
APPENDIX A - Discharge Monitoring Report Summary
Winter Ammonia

December through April

	Nitrogen ammonia, mg/L	Nitrogen ammonia, lb/day
	Monthly Average	Monthly Average
12/31/2011	0.04	0.14
1/31/2012	0.04	0.07
2/29/2012	0.04	0.05
3/31/2012	0.03	0.05
4/30/2012	0.21	0.4
11/30/2012	0.04	0.09
12/31/2012	0.04	0.05
1/31/2013	0.13	0.21
2/28/2013	0.33	0.74
3/31/2013	0.189	1.79
4/30/2013	0.07	0.11
12/31/2013	0.015	0.02
1/31/2014	0.03	0.15
2/28/2014	0.019	0.02
3/31/2014	0.017	0.02
4/30/2014	0.358	4.69
12/31/2014	0.015	0.07
1/31/2015	0.061	0.09
2/28/2015	0.071	0.07
3/31/2015	1.214	1.28
4/30/2015	1.438	6.78
12/31/2015	0.015	0.01
1/31/2016	0.015	0.04
2/29/2016	0.04	0.03
3/31/2016	0.032	0.09
4/30/2016	0.27	0.2
Average	0.183	0.664
Min	0.015	0.01
Max	1.438	6.78
Limit	15.2	136

November

	Nitrogen ammonia, mg/L	Nitrogen ammonia, lb/day
	Monthly Average	Monthly Average
11/30/2011	0.03	0.08
11/30/2013	0.02	0.01
11/30/2014	0.015	0.04
11/30/2015	0.07	0.03
Average	0.034	0.04
Min	0.015	0.01
Max	0.07	0.08
Limit	8.5	76

NPDES Draft Permit No. MA0100919 (Spencer WWTF)
APPENDIX A - Discharge Monitoring Report Summary
Total Nitrogen

	Nitrogen, total (as N)	
	lb/day	mg/L
	Monthly average	Monthly Average
5/31/2011	18.22	4.75
8/31/2011	49.69	27.08
11/30/2011	26.65	8.41
2/29/2012	16.87	11.9
5/31/2012	32.42	12.54
8/31/2012	21.85	21.83
11/30/2012	27.46	15.68
2/28/2013	18.06	8.02
5/31/2013	5.5	11
8/31/2013	16.5	9
11/30/2013	22.29	24.3
2/28/2014	21.48	17.17
5/31/2014	10.36	4.6
8/31/2014	53.94	23.1
11/30/2014	22.94	7.86
2/28/2015	12.9	11.9
5/31/2015	28.44	11
8/31/2015	56.43	19.9
11/30/2015	30.16	22.6
2/29/2016	42.46	13.4
Average	26.73	14.30
Minimum	5.5	4.6
Max	56.43	27.08

NPDES Draft Permit No. MA0100919 (Spencer WWTF)
APPENDIX A - Discharge Monitoring Report Summary
Summer Phosphorus

	Total Phosphorus, mg/L		Total Phosphorus, lbs/day	
Shaded cells indicate permit limit exceedances.	Monthly Average	Daily Max	Monthly Average	Daily Max
5/31/2011	0.167	0.185	0.66	0.87
6/30/2011	0.171	0.23	0.55	0.92
7/31/2011	0.149	0.178	0.37	0.43
8/31/2011	0.187	0.288	0.87	3.12
9/30/2011	0.188	0.213	0.62	1.01
10/31/2011	0.158	0.168	0.35	0.43
5/31/2012	0.183	0.191	0.44	0.52
6/30/2012	0.184	0.224	0.43	0.57
7/31/2012	0.211	0.0233	0.27	0.36
8/31/2012	0.215	0.244	0.3	0.59
9/30/2012	0.206	0.229	0.24	0.45
10/31/2012	0.194	0.223	0.46	1.66
5/31/2013	0.389	1.94	0.7	1.65
6/30/2013	0.123	0.226	0.49	1.02
7/31/2013	0.149	0.192	0.24	0.49
8/31/2013	0.152	0.211	0.27	0.37
9/30/2013	0.161	0.227	0.28	0.94
10/31/2013	0.134	0.176	0.16	0.25
5/31/2014	0.185	0.264	0.35	0.75
6/30/2014	0.071	0.245	0.15	0.3
7/31/2014	0.194	0.241	0.39	0.52
8/31/2014	0.168	0.193	0.41	0.71
9/30/2014	0.142	0.182	0.4	0.71
10/31/2014	0.149	0.183	0.4	0.59
5/31/2015	0.16	0.215	0.3	0.54
6/30/2015	0.192	0.399	0.51	0.97
7/31/2015	0.203	0.263	0.26	0.81
8/31/2015	0.235	0.31	0.52	0.8
9/30/2015	0.217	0.262	0.26	0.47
10/31/2015	0.158	0.191	0.19	0.24
Average	0.18	0.28	0.39	0.77
Min	0.071	0.0233	0.15	0.24
Max	0.389	1.94	0.87	3.12
Limit	0.2	No limit	0.79	No limit

NPDES Draft Permit No. MA0100919 (Spencer WWTF)
APPENDIX A - Discharge Monitoring Report Summary
Winter Phosphorus

	Total Phosphorus, mg/L			Total Phosphorus, lbs/day	
Shaded cells indicate permit limit exceedances.	Monthly Average	Weekly Average	Daily Max	Monthly Average	Daily Max
11/30/2011	0.163	0.174	0.174	0.42	0.46
12/31/2011	0.16	0.173	0.173	0.42	0.56
1/31/2012	0.175	0.182	0.182	0.32	0.42
2/29/2012	0.189	0.213	0.213	0.23	0.32
3/31/2012	0.205	0.229	0.229	0.5	0.75
4/30/2012	0.235	0.247	0.247	0.6	1.06
11/30/2012	0.193	0.205	0.205	0.4	0.68
12/31/2012	0.182	0.186	0.186	0.4	0.57
1/31/2013	0.179	0.197	0.197	0.44	0.87
2/28/2013	0.179	0.185	0.185	0.46	0.63
3/31/2013	0.186	0.204	0.204	0.89	2.01
4/30/2013	0.217	0.249	0.249	0.25	0.33
11/30/2013	0.17	0.175	0.175	0.14	0.16
12/31/2013	0.165	0.177	0.177	0.44	0.8
1/31/2014	0.153	0.17	0.17	0.52	0.81
2/28/2014	0.156	0.165	0.165	0.22	0.36
3/31/2014	0.164	0.176	0.176	0.37	0.54
4/30/2014	0.104	0.191	0.191	0.61	2.63
11/30/2014	0.162	0.178	0.178	0.52	0.77
12/31/2014	0.139	0.164	0.164	0.55	0.98
1/31/2015	0.105	0.119	0.119	0.19	0.33
2/28/2015	0.106	0.117	0.117	0.1	0.12
3/31/2015	0.145	0.184	0.184	0.34	0.58
4/30/2015	0.206	0.289	0.289	0.73	0.92
11/30/2015	0.144	0.149	0.149	0.17	0.2
12/31/2015	0.167	0.167	0.208	0.14	0.22
1/31/2016	0.126	0.126	0.144	0.28	0.55
2/29/2016	0.108	0.015	0.015	0.27	0.54
3/31/2016	0.1	0.1	0.129	0.25	0.25
4/30/2016	0.053	0.053	0.061	0.15	0.22
Average	0.158	0.172	0.175	0.377	0.655
Min	0.053	0.015	0.015	0.1	0.12
Max	0.235	0.289	0.289	0.89	2.63
Limit	0.3	1	No limit	1.19	No limit

NPDES Draft Permit No. MA0100919 (Spencer WWTF)
APPENDIX A - Discharge Monitoring Report Summary
Dissolved Oxygen and E. coli

	E. coli, cfu/100 mL		Dissolved Oxygen,	
Shaded cells indicate permit limit exceedances.	Monthly geometric mean	Daily Max	Monthly min	Weekly min
5/31/2011	1	1	7.6	7.6
6/30/2011	1.2	3	7.2	7.2
7/31/2011	10.9	48	7.4	7.4
8/31/2011	13.4	94	7.5	7.5
9/30/2011	3.6	21	7	7
10/31/2011	1.7	3	7.3	7.3
5/31/2012	0	0	7.4	7.4
6/30/2012	0	0	7.4	7.4
7/31/2012	1	1	7	7
8/31/2012	1.1	2	7.2	7.2
9/30/2012	1.2	2	7.7	7.7
10/31/2012	1.1	2	7.7	7.7
5/31/2013	4.7	79	7.9	7.9
6/30/2013	4.6	19	7.9	7.9
7/31/2013	2.7	15	7.4	7.4
8/31/2013	4.7	13	7.8	7.8
9/30/2013	1.2	2	7.6	7.6
10/31/2013	2.9	5	8	8
5/31/2014	0	0	6.8	6.8
6/30/2014	1	1	7	7
7/31/2014	1.1	2	7	7
8/31/2014	3	84	7.6	7.6
9/30/2014	2.6	9	7.3	7.3
10/31/2014	2.5	21	7.8	7.8
5/31/2015	0	0	7.3	7.3
6/30/2015	1	1	7.5	7.5
7/31/2015	2.1	13	7.1	7.1
8/31/2015	1	1	7.7	7.7
9/30/2015	3.2	11	7	7
10/31/2015	6.5	14	8.1	8.1
Average	2.70	15.57	7.44	7.44
Min	0	0	6.8	6.8
Max	13.4	94	8.1	8.1
Limit	200	400	6	6

Whole Effluent Toxicity Test Data

	Acute LC50	Chronic C-NOEC	Aluminum	Ammonia	Cadmium	Copper	Hardness	Lead	Nickel	Zinc
Monitoring Period End Date	DAILY MN	DAILY MN	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
8/31/2011	100	100	5	0.04	0.2	33.9	228	0.5	5.9	63.8
2/29/2012	100	92	15	0.040	0.2	17.1	154	0.5	2.2	64.3
8/31/2012	100	92	10	0.050	0.2	27.7	220	0.6	5.4	51.6
2/28/2013	100	100	20	0.200	1	11	68.8	5	4	49
8/31/2013	100	100	30	0.100	1	4	44	5	4	30
2/28/2014	100	100	30	0.100	1	3	154	5	4	2.5
8/31/2014	100	100	20	0.100	1	20	226	5	5	102
2/28/2015	100	100	20	0.100	1	16.9	197	5	4	76.3
8/31/2015	100	100	60	0.100	1	4.7	248	5	4	43
2/29/2016	100	100	29	0.100	1	21	212	5	2	87
Limit	100	92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

non-detect. Detection value shown.

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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 1
OFFICE OF ECOSYSTEM PROTECTION
5 POST OFFICE SQUARE
BOSTON, MASSACHUSETTS 02109

JOINT PUBLIC MEETING, PUBLIC HEARING, AND PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO THE WATERS OF THE UNITED STATES UNDER SECTION 301 AND 402 OF THE CLEAN WATER ACT, AS AMENDED, AND SECTIONS 27 AND 43 OF THE MASSACHUSETTS CLEAN WATER ACT, AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE ACT.

DATE OF NOTICE: February 26, 2018 – March 28, 2018

PERMIT NUMBER: MA0100919

PUBLIC NOTICE NUMBER: MA-009-18

NAME AND MAILING ADDRESS OF APPLICANT:

Town of Spencer Sewer Commission
3 Old Meadow Road
Spencer, MA 01562

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Town of Spencer Wastewater Treatment Plant
69 West Main Street
Spencer, MA 01562

RECEIVING WATER: Cranberry River

RECEIVING WATER CLASSIFICATION: Class B

PREPARATION OF THE DRAFT PERMIT:

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have cooperated in the development of a draft permit for the Spencer WWTP, which discharges treated domestic and industrial wastewater. Sludge from this facility is transported to the Synagro facility in Woonsocket, RI for incineration. The effluent limits and permit conditions imposed have been drafted to assure compliance with the Clean Water Act, 33 U.S.C. sections 1251 et seq., the Massachusetts Clean Waters Act, G.L. c. 21, §§ 26-53, 314 CMR 3.00, and State Surface Water Quality Standards at 314 CMR 4.00. EPA has requested that the State certify this draft permit pursuant to Section 401 of the Clean Water Act and expects that the draft permit will be certified.

INFORMATION ABOUT THE DRAFT PERMIT:

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

Robin L. Johnson

U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1045
Johnson.robin@epa.gov

The administrative record containing all documents relating to this draft permit is on file and may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC MEETING:

The Regional Administrator has determined, pursuant to 40 CFR §124.12, that a significant degree of public interest exists in this proposed permit and that a public meeting should be held in Spencer, Massachusetts to consider this permit. Accordingly, a public meeting will be held on the following date and time:

DATE: Monday, March 26, 2018
TIME: 5:00 – 6:00 pm
LOCATION: Richard Sugden Library
8 Pleasant Street
Spencer, MA 01562

The following is a summary of the procedures that will be followed at the public meeting:

- The Presiding Chairperson will have the authority to open and conclude the meeting and to maintain order.
- EPA will make a short presentation describing the NPDES permit process and the draft permit conditions, and then accept questions from the audience.
- Formal oral comments concerning the draft permit will not be accepted at the public meeting. Formal oral comments will be accepted at the subsequent public hearing.

PUBLIC HEARING:

The Regional Administrator has determined, pursuant to 40 CFR §124.12, that a significant degree of public interest exists in this proposed permit and that a public hearing should be held in Spencer, Massachusetts to consider this permit. Accordingly, a public hearing will be held on the same date and following the close of the public meeting:

DATE: Monday, March 26, 2018
TIME: 6:00 PM
LOCATION: Richard Sugden Library
8 Pleasant Street
Spencer, MA 01562

The following is a summary of the procedures that will be followed at the public hearing:

- The Presiding Chairperson will have the authority to open and conclude the hearing and to maintain order.
- Any person appearing at such a hearing may submit oral or written statements and data concerning the draft permit.

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by March 28, 2018, to the U.S. EPA, 5 Post Office Square, Boston, Massachusetts 02109. In reaching a final decision on this draft permit the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

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.

LEALDON LANGLEY, DIRECTOR
MASSACHUSETTS WASTEWATER
MANAGEMENT PROGRAM
MASSACHUSETTS DEPARTMENT OF
ENVIRONMENTAL PROTECTION

KEN MORAFF, DIRECTOR
OFFICE OF ECOSYSTEM PROTECTION
ENVIRONMENTAL PROTECTION
AGENCY