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

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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)* *(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

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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 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)

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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
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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

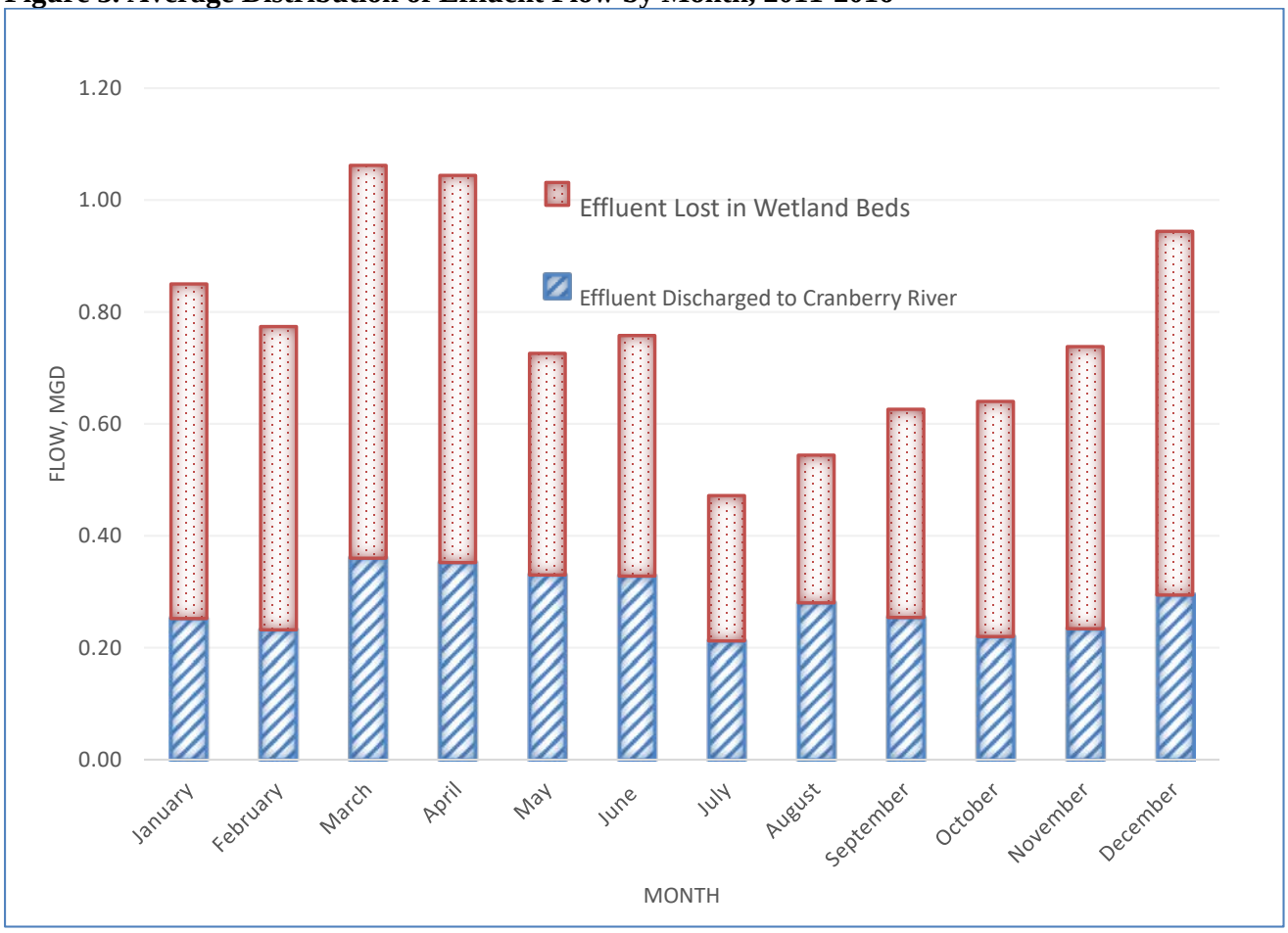
the beds, Bed C through Bed H, were converted into constructed wetlands by removing existing vegetation and the top layer of soil and installing inlet and outlet structures, underdrains, six inches of top sand and wetland vegetation. Four different types of vegetation were planted for phosphorus removal. 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

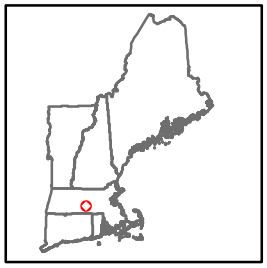

FIGURE 1
Location Map
Spencer Wastewater Treatment Plant
Spencer, MA

EPA

6/14/2016

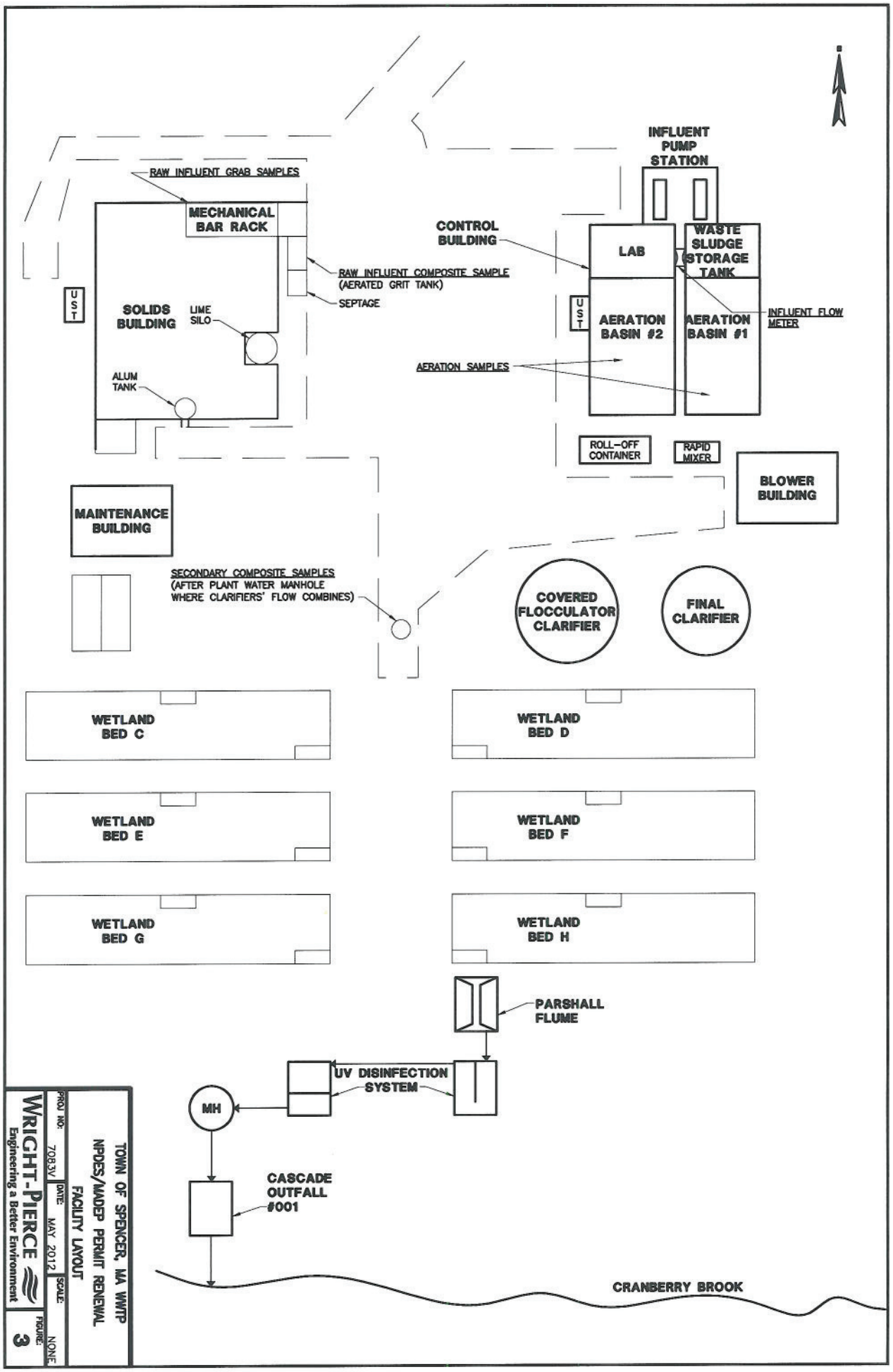

Figure 2 - Process Diagram

NPDES Draft Permit No. MA0100919
Spencer WWTF
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

NPDES Draft Permit No. MA0100919
Spencer WWTF
APPENDIX A - Discharge Monitoring Report Summary
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

NPDES Draft Permit No. MA0100919
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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
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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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
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

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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

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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

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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

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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

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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

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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

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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

https://www.epa.gov/npdes-permits/massachusetts-draft-individual-npdes-permits

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