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 Pepperell
Sewer Commission
47 Nashua Road, P.O. Box 319
Pepperell, MA 01463

is authorized to discharge from the facility located at

Pepperell Wastewater Treatment Plant (WWTP)
47 Nashua Road, Route 111, Pepperell, MA 01463

to receiving water named

Nashua River (Segment MA81-07)

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

The Town of Groton is a co-permittee for Part I.B. Unauthorized Discharges, and Part I.C. Operation and Maintenance of the Sewer System, which include conditions regarding the operation and maintenance of the portion of the collection system owned and operated by the Town. The Town is also responsible for the requirements found in Part I.F. State Permit Conditions. The responsible town department is:

Groton Sewer Commission, Groton Town Hall
173 Main Street Groton, MA 01450

This permit will become effective on the first day of the calendar month immediately following sixty days after signature.

This permit expires at midnight, five (5) years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on December 22, 2005 and which became effective February 20 2006.

This permit consists of 15 pages in **Part I** including effluent limitations and monitoring requirements, 25 pages in **Part II**, the NPDES Part II Standard Conditions, **Attachment A**, the Acute Whole Effluent Toxicity Test Protocol dated 02/28/11, and **Attachment B**, the Summary of Required Report Submittals.

Signed this 7th day of September, 2016

/S/SIGNATURE ON FILE
Ken Moraff, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

/S/SIGNATURE ON FILE
David Ferris, Director
Massachusetts Wastewater Management Program
Department of Environmental Protection
Commonwealth of Massachusetts, Boston, MA

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 Nashua River. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS[3]	
PARAMETER	AVERAGE MONTHLY	AVERAGE WEEKLY	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	MEASUREMENT FREQUENCY	SAMPLE TYPE
TREATED EFLUENT FLOW[2]	*********	*********	1.10 MGD	*********	Report MGD	CONTINUOUS	RECORDER
TREATED EFLUENT FLOW[2]	*********	*********	Report MGD	*********	*********	CONTINUOUS	RECORDER
BOD_5 [4]	176 lbs/Day	264 lbs/Day	19 mg/l	29 mg/l	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TSS [4]	176 lbs/Day	264 lbs/Day	19 mg/l	29 mg/l	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
pH RANGE[1]	6.5 - 8.3 SU (SEE PERMIT PARAGRAPH I.A.1.b.)					1/DAY	GRAB
ESCHERICHIA COLI [1,6,7] (*E. coli*)	*********	**********	126 cfu/100 ml	*********	409 cfu/100 ml	1/WEEK	GRAB
TOTAL RECOVERABLE COPPER[8,12,13] June, July, August, and September	*********	**********	65.7ug/l	*********	97.5 ug/l	1/MONTH	24-HOUR COMPOSITE[5]
WHOLE EFFLUENT TOXICITY [9,12]	Acute LC_{50} $\geq$100%[10]					2/YEAR	24-HOUR COMPOSITE[5]

CONTINUED FROM PREVIOUS PAGE

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

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS[3]	
PARAMETER	AVERAGE MONTHLY	AVERAGE WEEKLY	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	MEASUREMENT FREQUENCY	SAMPLE TYPE
TOTAL PHOSPHORUS[14]	Report lbs/Day	***	1.0 mg/l	Report mg/l	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL PHOSPHORUS[14] (April 1- October 31) Ambient River Sample	Report lbs/Day	***	*********	*********	Report mg/l	1/MONTH	GRAB
AMMONIA NITROGEN as N (May1 through October 31)	88 lbs/Day	176 lbs/Day	10 mg/l	20 mg/l	*********	1/WEEK	24-HOUR COMPOSITE[5]
Total Hardness $CaCO_3$[12]	*********	*********	*********	*********	Report ug/l	2/Year	24-Hr Comp
Total Recoverable Aluminum[12]	*********	*********	*********	*********	Report ug/l	2/Year	24-Hr Comp
Total Recoverable Cadmium [12]	*********	*********	*********	*********	Report ug/l	2/Year	24-Hr Comp
Total Recoverable Copper[8,12,13]	*********	*********	65.7 ug/l	*********	97.5 ug/l	4/Year	24-Hr Comp
Total Recoverable Lead[8,12,13]	*********	*********	*********	*********	Report ug/l	4/Year	24-Hr Comp
Total Recoverable Copper[8,13] Ambient River Sample June, July, August, and September	*********	*********	*********	*********	Report ug/l	4/Year	Grab
Total Recoverable Lead[8,13] Ambient River Sample June, July, August, and September	*********	*********	*********	*********	Report ug/l	4/Year	Grab
Total Recoverable Nickel[12]	*********	*********	*********	*********	Report ug/l	2/Year	24-Hr Comp
Total Recoverable Zinc[12]	*********	*********	*********	*********	Report ug/l	2/Year	24-Hr Comp

Footnotes:

1. Required for State Certification.

2. Report annual average, monthly average, and the maximum daily flow. 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. In order to ensure proper operation of the treatment facility flows in excess of the design flow limit 1.10 MGD on a 12 month rolling average basis are not authorized.

3. Effluent sampling shall be collected at the point specified below. Any change in sampling location must be reviewed and approved in writing by EPA.

Parameter	Accurate location where samples are taken
FLOW	Upstream of UV disinfection Unit
BOD_5 and TSS (Influent)	Within grit clarifier
BOD_5 and TSS (Effluent)	Effluent weir
pH Range	Effluent weir
Escherichia Coli	Effluent weir
Whole Effluent Toxicity (Effluent)	Effluent weir
Whole Effluent Toxicity (Dilution Water)	In accordance with the protocol, 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.
Ambient Total Phosphorus, Total Copper and Total Lead	Same location as WET Dilution Water
Total Phosphorus	Effluent weir + grit clarifier
Ammonia as N	Effluent weir + grit clarifier
Total Recoverable Metals and Hardness	Effluent weir

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. Occasional deviations from the routine sampling program are allowed, but the reason for the deviation shall be documented in correspondence appended to the applicable discharge monitoring report.

All samples shall be tested using the analytical methods found in 40 CFR § 136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR § 136.

4. Sampling required for influent and effluent.

5. 24-hour composite samples 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. The monthly average limit for E. coli is expressed as a geometric mean.

7. UV disinfection systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the disinfection system that may have resulted in inadequate disinfection in the final effluent shall be reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the disinfection system was not operating properly.

8. The minimum level (ML) for both total recoverable copper and total recoverable lead using Inductively Coupled Plasma - Mass Spectrometry (EPA Method 200.8), is 0.5 ug/l. This method or other EPA-approved method (see 40 CFR § 136) with an equivalent or lower ML shall be used for both effluent and ambient total recoverable copper and/or total recoverable lead analysis.

9. The permittee shall conduct toxicity testing **twice per year, in June and September**. The permittee shall test the daphnid, *Ceriodaphnia dubia*, only. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit and according to the schedule in the table below.

Test Dates Same week of each month (i.e.: 1st, 2nd, etc.)	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**
June **September**	**July 31** **October 31**	Ceriodaphnia dubia (daphnid)	≥ 100%

10. The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate.

11. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall either follow procedures outlined in **Attachment A (Toxicity Test Procedure and Protocol**) **Section IV., DILUTION WATER** in order to obtain an individual approval for use of an alternate dilution water, or the permittee shall follow the Self-Implementing Alternative Dilution Water Guidance, which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water.
This guidance is found in Attachment G of *NPDES Program Instructions for the Discharge Monitoring Report Forms (DMRs)*, which may be found on the EPA Region I

web site at http://www.epa.gov/Region1/enforcementandassistance/dmr.html.

If this guidance is revoked, the permittee shall revert to obtaining individual approval as outlined in **Attachment A**. Any modification or revocation to this guidance will be transmitted to the permittees. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.

12. For each whole effluent toxicity test, the permittee shall report on the appropriate discharge monitoring report (DMR) the concentrations of the hardness, ammonia nitrogen as nitrogen, total recoverable aluminum, cadmium, nickel and zinc found in the 100 percent effluent sample. All of these aforementioned chemical parameters shall be determined to at least the minimum quantification level shown in **Attachment A**. Also, the permittee should note that all chemical parameter results must still be reported in the appropriate toxicity report.

13. Total copper and total lead effluent and ambient samples shall be taken 4 times per year during the months of June, July, August, and September. The June and September samples may be taken as part of the June and September WET testing. Ambient samples may be taken as grab samples.

14. The average monthly total phosphorus final limit of 1.0 mg/l will apply year-round within eighteen (18) months of the effective date of this permit. An interim report only requirement will be in place for the period November 1 through March 31of each year until the completion of the compliance schedules in Permit Section F.

Part I.A.1. (Continued)

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

b. The pH of the effluent shall not be less than 6.0 or greater than 8.3 at any time.

c. The discharge shall not cause objectionable discoloration of the receiving waters.

d. The effluent shall not contain a visible oil sheen, foam, or floating solids at any time.

e. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand. The percent removal shall be based on monthly average values.

f. The results of sampling for any parameter done in accordance with EPA approved methods above its required frequency must also be reported.

2. All POTWs must provide adequate notice to the Director of the following:

   a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of the Clean Water Act if it were directly discharging those pollutants; 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.

3. Prohibitions Concerning Interference and Pass Through:

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

4. Toxics Control

   a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.

   b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

5. Numerical Effluent Limitations for Toxicants

   EPA may use the results of the toxicity tests and chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to Section 304(a)(1) of the Clean Water Act (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 Part 122.

B. 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 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 MassDEP Regional Office telephone numbers). The reporting form and instructions for its completion may be found online at http://www.mass.gov/eea/agencies/massdep/service/approvals/sanitarysewer-overflow-bypass-backup-notification.html.

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the following terms and conditions. The permittee and co-permittee are required to complete the following activities for the collection system which it owns:

1. Maintenance Staff

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

2. Preventive Maintenance Program

   The permittee and co-permittee shall maintain ongoing preventive maintenance programs to prevent overflows and bypasses caused by malfunctions or failures of their 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 their Collection System O & M Plans required pursuant to Section C.5 below.

3. Infiltration/Inflow

   The permittee and co-permittee shall control infiltration and inflow (I/I) into their 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 their Collection System O & M Plans, required pursuant to Section C.5 on the next page.

4. Collection System Mapping

   Within 30 months of the effective date of this permit, the permittee and co-permittee shall each prepare a map of the sewer collection system it owns (see page 1 of this permit for the effective date). The map shall be on a street map of the community, with sufficient detail and at a scale to allow easy interpretation. The collection system information shown on the map shall be based on current conditions and shall be kept up to date and

available for review by federal, state, or local agencies. Such map(s) shall include, but not be limited to the following:

a. All sanitary sewer lines and related manholes;
b. All combined sewer lines, related manholes, and catch basins;
c. All combined sewer regulators and any known or suspected connections between the sanitary sewer and storm drain systems (e.g. combination manholes);
d. All outfalls, including the treatment plant outfall(s), CSOs, and any known or suspected SSOs, including stormwater outfalls that are connected to combination manholes;
e. All pump stations and force mains;
f. The wastewater treatment facility(ies);
g. All surface waters (labeled);
h. Other major appurtenances such as inverted siphons and air release valves;
i. A numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;
j. The scale and a north arrow; and the pipe diameter, date of installation, type of material, distance between manholes, and the direction of flow. 5. Collection System Operation and Maintenance Plan

5. Collection System Operation and Maintenance Plan

The permittee and co-permittee shall each develop and implement a Collection System Operation and Maintenance Plan.

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

    (1) A description of their collection system management goals, staffing, information management, and legal authorities;
    (2) A description of their collection system and the overall condition of their 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 their full Collection System O & M Plan including the elements in paragraphs b.1 through b.8.

b. The full Collection System O & M Plans shall be completed, implemented and submitted to EPA within twenty-four (24) months from the effective date of this permit. Each 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 or co-permittee's programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts; and a map with areas identified for investigation/action in the coming year;

(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 imitation in the permit.

6. Annual Reporting Requirement

The permittee and co-permittee shall each submit a summary report of activities related to the implementation of its Collection System O & M Plan during the previous calendar year. The report shall be submitted to EPA and 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, 0.88 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.

7. Alternate Power Source

In order to maintain compliance with the terms and conditions of this permit, the

permittee and co-permittee shall provide alternative power sources sufficient to operate the portion of the sewer system or publicly owned treatment works that it owns and operates**.**

D. SLUDGE CONDITIONS

1. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices, including EPA regulations promulgated at 40 CFR Part 503, which prescribe "Standards for the Use or Disposal of Sewage Sludge" pursuant to Section 405(d) of the CWA, 33 U.S.C. § 1345(d).

2. If both state and federal requirements apply to the permittee's sludge use and/or disposal practices, the permittee shall comply with the more stringent of the applicable requirements.

3. The requirements and technical standards of 40 CFR Part 503 apply to the following sludge use or disposal practices.

   a. Land application - the use of sewage sludge to condition or fertilize the soil
   b. Surface disposal - the placement of sewage sludge in a sludge only landfill
   c. Sewage sludge incineration in a sludge only incinerator

4. The requirements of 40 CFR Part 503 do not apply to facilities which dispose of sludge in a municipal solid waste landfill. 40 CFR § 503.4. These requirements also do not apply to facilities which do not use or dispose of sewage sludge during the life of the permit but rather treat the sludge (e.g., lagoons, reed beds), or are otherwise excluded under 40 CFR § 503.6.

5. The 40 CFR. Part 503 requirements including the following elements:

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

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

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

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

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

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

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

8. The permittee shall submit an annual report containing the information specified in the 40 CFR Part 503 requirements (§ 503.18 (land application), § 503.28 (surface disposal), or §503.48 (incineration)) by February 19 (see also "EPA Region 1 - NPDES Permit Sludge Compliance Guidance"). Reports shall be submitted to the address contained in the reporting section of the permit. If the permittee engages a contractor or contractors for sludge preparation and ultimate use or disposal, the annual report need contain only the following information:

   a. Name and address of contractor(s) responsible for sludge preparation, use or disposal.
   b. Quantity of sludge (in dry metric tons) from the POTW that is transferred to the sludge contractor(s), and the method(s) by which the contractor will prepare and use or dispose of the sewage sludge.

E. 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 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 MassDEP or EPA.

2. Submittal of Reports as NetDMR Attachments

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

3. Submittal of 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 WET Testing Requirement
   D. Report on unacceptable dilution water / request for alternative dilution water for WET testing

   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

4. 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. Reports C, D, E, and F shall be also reported electronically through NetDMR.

A. Written notifications required under Part II
B. Notice of unauthorized discharges, including Sanitary Sewer Overflow (SSO) reporting
C. Collection System Operation and Maintenance Plan (from co-permittee)
D. Report on annual activities related to O&M Plan (from co-permittee)
E. Sludge Monitoring Reports
F. Compliance Schedule Milestone Reports (Permit Section F)

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

U.S. Environmental Protection Agency
Office or Environmental Stewardship (OES)
Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

All sludge monitoring reports required herein shall be submitted only to:

U.S. Environmental Protection Agency, Region 7
Biosolids Center
Water Enforcement Branch
11201 Renner Boulevard
Lenexa, Kansas 66219

5. State Reporting

With the exception of copies of toxicity tests, information submitted to the State in hard copy 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 only shall be submitted to:

Massachusetts Department of Environmental Protection
Watershed Planning Program
8 New Bond Street

Worcester, Massachusetts 01606

6. 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 EPA. 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:

U.S. Environmental Protection Agency
Office of Environmental Stewardship
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912
617-918-1510

F. SCHEDULES OF COMPLIANCE FOR TOTAL PHOSPHORUS

The permittee shall meet the following schedule for achieving the year-round total phosphorus limit:

- Within five (5) months of the effective date of the permit, identify upgrades required to meet new winter limit.
- Within eight (8) months of the effective date of the permit, develop a preliminary design of upgrades.
- Within eighteen (18) months of the effective date of the permit, complete construction, startup and optimization of facility improvements necessary to achieve the final phosphorus permit limit.
- The permittee shall notify EPA in writing of progress toward achieving each milestone **within 30 days of the scheduled date**.

G. 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.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

TABLE OF CONTENTS

PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

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

a. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.

b. The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any of such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402 (a)(3) or 402 (b)(8) of the CWA is subject to a civil penalty not to exceed $25,000 per day for each violation. Any person who negligently violates such requirements is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or both. Any person who knowingly violates such requirements is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

c. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

Note: See 40 CFR §122.41(a)(2) for complete "Duty to Comply" regulations.

2. Permit Actions

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

3. Duty to Provide Information

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

4. Reopener Clause

The Regional Administrator reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA in order to bring all discharges into compliance with the CWA.

For any permit issued to a treatment works treating domestic sewage (including "sludge-only facilities"), the Regional Administrator or Director shall include a reopener clause to incorporate any applicable standard for sewage sludge use or disposal promulgated under Section 405 (d) of the CWA. The Regional Administrator or Director may promptly modify or revoke and reissue any permit containing the reopener clause required by this paragraph if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or contains a pollutant or practice not limited in the permit.

Federal regulations pertaining to permit modification, revocation and reissuance, and termination are found at 40 CFR §122.62, 122.63, 122.64, and 124.5.

5. Oil and Hazardous Substance Liability

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

6. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges.

7. Confidentiality of Information

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

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

(1) The name and address of any permit applicant or permittee;
(2) Permit applications, permits, and effluent data as defined in 40 CFR §2.302(a)(2).

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

8. Duty to Reapply

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

9. State Authorities

Nothing in Part 122, 123, or 124 precludes more stringent State regulation of any activity covered by these regulations, whether or not under an approved State program.

10. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, nor does it relieve the permittee of its obligation to comply with any other applicable Federal, State, or local laws and regulations.

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce Not a Defense

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

3. Duty to Mitigate

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

4. Bypass

a. Definitions

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

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

b. Bypass not exceeding limitations

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of Paragraphs B.4.c. and 4.d. of this section.

c. Notice

(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (Twenty-four hour reporting).

d. Prohibition of bypass

Bypass is prohibited, and the Regional Administrator may take enforcement action against a permittee for bypass, unless:

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

5. Upset

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

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph B.5.c. of this section are met. No determination made during

administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

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

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

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

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

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

b. Except for records for monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application except for the information concerning storm water discharges which must be retained for a total of 6 years. This retention period may be extended by request of the Regional Administrator at any time.

c. Records of monitoring information shall include:

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

d. Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.

e. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by

imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

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

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

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

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

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

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

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

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR§122.29(b); or
(2) The alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged. This notification applies to pollutants which are subject neither to the effluent limitations in the permit, nor to the notification requirements at 40 CFR§122.42(a)(1).
(3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition or change may justify the application of permit conditions different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

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

c. Transfers. This permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator may require modification or revocation and reissuance of the permit to change the name of the permittee and

incorporate such other requirements as may be necessary under the CWA. (See 40 CFR Part 122.61; in some cases, modification or revocation and reissuance is mandatory.)

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

(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.

(2) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

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

e. Twenty-four hour reporting.

(1) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances.

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

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

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

(3) The Regional Administrator may waive the written report on a case-by-case basis for reports under Paragraph D.1.e. if the oral report has been received within 24 hours.

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

g. Other noncompliance. The permittee shall report all instances of noncompliance not reported under Paragraphs D.1.d., D.1.e., and D.1.f. of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in Paragraph D.1.e. of this section.

h. Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, it shall promptly submit such facts or information.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR §122.22)

b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 2 years per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under Paragraph A.8. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Regional Administrator. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

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

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

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

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For total and/or fecal coliforms and Escherichia coli, the average shall be the geometric mean.

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

Average weekly discharge limitation means the highest allowable average of "daily discharges" measured during the calendar week divided by the number of "daily discharges" measured during the week.

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

Best Professional Judgment (BPJ) means a case-by-case determination of Best Practicable Treatment (BPT), Best Available Treatment (BAT), or other appropriate technology-based standard based on an evaluation of the available technology to achieve a particular pollutant reduction and other factors set forth in 40 CFR §125.3 (d).

Coal Pile Runoff means the rainfall runoff from or through any coal storage pile.

Composite Sample means a sample consisting of a minimum of eight grab samples of equal volume collected at equal intervals during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportional to flow, or a sample consisting of the same number of grab samples, or greater, collected proportionally to flow over that same time period.

Construction Activities - The following definitions apply to construction activities:

(a) Commencement of Construction is the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

(b) Dedicated portable asphalt plant is a portable asphalt plant located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR Part 443.

(c) Dedicated portable concrete plant is a portable concrete plant located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

(d) Final Stabilization means that all soil disturbing activities at the site have been complete, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

(e) Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff.

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

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

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, and Pub. L. 97-117; 33 USC §§1251 et seq.

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

Director normally means the person authorized to sign NPDES permits by EPA or the State or an authorized representative. Conversely, it also could mean the Regional Administrator or the State Director as the context requires.

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

Discharge of a pollutant means:

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

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

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead

to a treatment works; and discharges through pipes, sewers, or other conveyances leading into privately owned treatment works.

This term does not include an addition of pollutants by any "indirect discharger."

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

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

EPA means the United States "Environmental Protection Agency".

Flow-weighted composite sample means a composite sample consisting of a mixture of aliquots where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab Sample – An individual sample collected in a period of less than 15 minutes.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the CWA.

Indirect Discharger means a non-domestic discharger introducing pollutants to a publicly owned treatment works.

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

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

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

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

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

Large and Medium municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and 40 CFR Part 122); or (ii) located in the counties with unincorporated urbanized

populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR 122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.

Maximum daily discharge limitation means the highest allowable "daily discharge" concentration that occurs only during a normal day (24-hour duration).

Maximum daily discharge limitation (as defined for the Steam Electric Power Plants only) when applied to Total Residual Chlorine (TRC) or Total Residual Oxidant (TRO) is defined as "maximum concentration" or "Instantaneous Maximum Concentration" during the two hours of a chlorination cycle (or fraction thereof) prescribed in the Steam Electric Guidelines, 40 CFR Part 423. These three synonymous terms all mean "a value that shall not be exceeded" during the two-hour chlorination cycle. This interpretation differs from the specified NPDES Permit requirement, 40 CFR § 122.2, where the two terms of "Maximum Daily Discharge" and "Average Daily Discharge" concentrations are specifically limited to the daily (24-hour duration) values.

Municipality means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management agency under Section 208 of the CWA.

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

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

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

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

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

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

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

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System".

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

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

Permit means an authorization, license, or equivalent control document issued by EPA or an "approved" State.

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

Point Source means any discernible, confined, and discrete conveyance, including but not limited to any pipe ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (see 40 CFR §122.2).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

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

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

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

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

Publicly Owned Treatment Works (POTW) means any facility or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a "State" or "municipality".

This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

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

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

Section 313 water priority chemical means a chemical or chemical category which:

(1) is listed at 40 CFR §372.65 pursuant to Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986);

(2) is present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and

(3) satisfies at least one of the following criteria:

(i) are listed in Appendix D of 40 CFR Part 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols), or Table V (certain toxic pollutants and hazardous substances);
(ii) are listed as a hazardous substance pursuant to Section 311(b)(2)(A) of the CWA at 40 CFR §116.4; or
(iii) are pollutants for which EPA has published acute or chronic water quality criteria.

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

Sewage Sludge means any solid, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III Marine Sanitation Device pumpings (33 CFR Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

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

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

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

Sludge-only facility means any "treatment works treating domestic sewage" whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to Section 405(d) of the CWA, and is required to obtain a permit under 40 CFR §122.1(b)(3).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands.

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

Storm water discharge associated with industrial activity means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. (See 40 CFR §122.26 (b)(14) for specifics of this definition.

Time-weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

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

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

For purposes of this definition, "domestic sewage" includes waste and wastewater from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Regional Administrator may designate any person subject to the standards for sewage sludge use and disposal in 40 CFR Part 503 as a "treatment works treating domestic sewage", where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 CFR Part 503.

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

Waters of the United States means:

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

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

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

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

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

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

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

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

(f) The territorial sea; and

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

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the United States.

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

Whole Effluent Toxicity (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test. (See Abbreviations Section, following, for additional information.)

2. Definitions for NPDES Permit Sludge Use and Disposal Requirements.

Active sewage sludge unit is a sewage sludge unit that has not closed.

Aerobic Digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

Agricultural Land is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.

Agronomic rate is the whole sludge application rate (dry weight basis) designed:

(1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and

(2) To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

Air pollution control device is one or more processes used to treat the exit gas from a sewage sludge incinerator stack.

Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

Annual pollutant loading rate is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.

Annual whole sludge application rate is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period.

Apply sewage sludge or sewage sludge applied to the land means land application of sewage sludge.

Aquifer is a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding ground water to wells or springs.

Auxiliary fuel is fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of the sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel.

Base flood is a flood that has a one percent chance of occurring in any given year (i.e. a flood with a magnitude equaled once in 100 years).

Bulk sewage sludge is sewage sludge that is not sold or given away in a bag or other container for application to the land.

Contaminate an aquifer means to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR §141.11 to be exceeded in ground water or that causes the existing concentration of nitrate in the ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR §141.11.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR §501.2, required to have an approved pretreatment program under 40 CFR §403.8 (a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR §403.10 (e) and any treatment works treating domestic sewage, as defined in 40 CFR § 122.2,

classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved state programs, the Regional Administrator in conjunction with the State Director, because of the potential for sewage sludge use or disposal practice to affect public health and the environment adversely.

Control efficiency is the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

Cover is soil or other material used to cover sewage sludge placed on an active sewage sludge unit.

Cover crop is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

Cumulative pollutant loading rate is the maximum amount of inorganic pollutant that can be applied to an area of land.

Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

Dispersion factor is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

Displacement is the relative movement of any two sides of a fault measured in any direction.

Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

Domestic sewage is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

Dry weight basis means calculated on the basis of having been dried at 105 degrees Celsius (°C) until reaching a constant mass (i.e. essentially 100 percent solids content).

Fault is a fracture or zone of fractures in any materials along which strata on one side are displaced with respect to the strata on the other side.

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

Final cover is the last layer of soil or other material placed on a sewage sludge unit at closure.

Fluidized bed incinerator is an enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles suspended in the combustion chamber gas.

Food crops are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

Forest is a tract of land thick with trees and underbrush.

Ground water is water below the land surface in the saturated zone.

Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present.

Hourly average is the arithmetic mean of all the measurements taken during an hour. At least two measurements must be taken during the hour.

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

Industrial wastewater is wastewater generated in a commercial or industrial process.

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

Land with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, a public contact site and reclamation site located in a populated area (e.g., a construction site located in a city).

Land with low potential for public exposure is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

Leachate collection system is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit.

Liner is soil or synthetic material that has a hydraulic conductivity of 1×10^{-7} centimeters per second or less.

Lower explosive limit for methane gas is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

Monthly average (Incineration) is the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month.

Monthly average (Land Application) is the arithmetic mean of all measurements taken during the month.

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

Other container is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

Pasture is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

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

Permitting authority is either EPA or a State with an EPA-approved sludge management program.

Person is an individual, association, partnership, corporation, municipality, State or Federal Agency, or an agent or employee thereof.

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

pH means the logarithm of the reciprocal of the hydrogen ion concentration; a measure of the acidity or alkalinity of a liquid or solid material.

Place sewage sludge or sewage sludge placed means disposal of sewage sludge on a surface disposal site.

Pollutant (as defined in sludge disposal requirements) is an organic substance, an inorganic substance, a combination or organic and inorganic substances, or pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could on the basis on information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction) or physical deformations in either organisms or offspring of the organisms.

Pollutant limit (for sludge disposal requirements) is a numerical value that describes the amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams per kilogram of total solids); the amount of pollutant that can be applied to a unit of land (e.g., kilograms per hectare); or the volume of the material that can be applied to the land (e.g., gallons per acre).

Public contact site is a land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

Qualified ground water scientist is an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in ground water hydrology and related fields, as may be demonstrated by State registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding ground water monitoring, pollutant fate and transport, and corrective action.

Range land is open land with indigenous vegetation.

Reclamation site is drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites.

Risk specific concentration is the allowable increase in the average daily ground level ambient air concentration for a pollutant from the incineration of sewage sludge at or beyond the property line of a site where the sewage sludge incinerator is located.

Runoff is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off the land surface.

Seismic impact zone is an area that has 10 percent or greater probability that the horizontal ground level acceleration to the rock in the area exceeds 0.10 gravity once in 250 years.

Sewage sludge is a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to:, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in treatment works.

Sewage sludge feed rate is either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365 day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located.

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

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR §122.2.

Sewage sludge unit boundary is the outermost perimeter of an active sewage sludge unit.

Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in sewage sludge.

Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 meters. When the difference is greater than 65 meters, stack height is the creditable stack height determined in accordance with 40 CFR §51.100 (ii).

State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, and an Indian tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.

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

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

Total hydrocarbons means the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane.

Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

Treat or treatment of sewage sludge is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

Treatment works is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

Unstable area is land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

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

Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

Wet electrostatic precipitator is an air pollution control device that uses both electrical forces and water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

Wet scrubber is an air pollution control device that uses water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

3. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl_2	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)

TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont. (Continuous)	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen
kg/day	Kilograms per day
lbs/day	Pounds per day
mg/l	Milligram(s) per liter
ml/l	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
pH	A measure of the hydrogen ion concentration. A measure of the acidity or alkalinity of a liquid or material
Surfactant	Surface-active agent

Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
ug/l	Microgram(s) per liter
WET	"Whole effluent toxicity" is the total effect of an effluent measured directly with a toxicity test.
C-NOEC	"Chronic (Long-term Exposure Test) – No Observed Effect Concentration". The highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specified time of observation.
A-NOEC	"Acute (Short-term Exposure Test) – No Observed Effect Concentration" (see C-NOEC definition).
LC_{50}	LC_{50} is the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC_{50} = 100% is defined as a sample of undiluted effluent.
ZID	Zone of Initial Dilution means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports.

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 ± 1^{o}C or 25 ± 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	≥ 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.

Permit Attachment B
Summary of Required Report Submittals

This table is a summary of the reports required to be submitted under this NPDES permit as an aid to the permittee(s). If there are any discrepancies between the permit and this summary, the permittee(s) shall follow the permit requirements. The addresses are for the submittal of hard copies.

1 U.S. Environmental Protection Agency Water Technical Unit (OES04-4) 5 Post Office Square - Suite 100 Boston, MA 02109-3912 617-918-1510	**2** Massachusetts Department of Environmental Protection Watershed Planning Program 8 New Bond Street Worcester, Massachusetts 01606
3 MassDEP – Central Region Bureau of Water Resources 8 New Bond Street Worcester, Massachusetts 01606	**4** All sludge monitoring reports U.S. Environmental Protection Agency, Region 7 Biosolids Center Water Enforcement Branch 11201 Renner Boulevard Lenexa, Kansas 66219

Requirement	**Due Date**	**Addressees**
Toxicity test samples shall be collected during the months of; June and September. [Part I.A Footnote 9]	Results shall be submitted by July 31, and October 31 of each year	1 and 2
If the average annual flow in any calendar year exceeds 80% of the facility's design flow, the permittee shall submit a report to MassDEP. [Part I.A.2.i.]	By March 31 of the following calendar year	1, 2 and 3
Notification of Sanitary Sewer Overflows [Part I.B]	Within 24 hours of SSO event.	1 and 3
The permittee shall prepare a map of the sewer collection system it owns. [Part I.C.4.a]	Within 30 months of the effective date of this permit	1, 2, and 3
The permittee shall develop and implement a Collection System Operation and Maintenance Plan. [Part I.C.4]	Within six (6) months of the effective date of the permit, the permittee shall submit to EPA and MassDEP	1, 2, and 3
The full Collection System O & M Plan shall be completed, implemented and submitted to EPA and MassDEP. [Part [I.C.5.b]	Within twenty four (24) months of the effective date of the permit, the permittee shall submit to EPA and MassDEP	1, 2, and 3

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. [I.C.6]	The report shall be submitted to EPA and MassDEP annually by March 31	1, 2, and 3
Annual Sludge Report [Part I.D.8]	Annually by February 19	4 and Net DMR
Monitoring results obtained during each calendar month shall be summarized and reported via NET DMR [Part I.E]	No later than the 15th day of the following month.	Net DMR

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

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES.

NPDES PERMIT NO.: **MA0100064**

PUBLIC NOTICE START AND END DATE: February 18, 2015 – April 3, 2015

NAME AND ADDRESS OF APPLICANT:

Town of Pepperell
Sewer Commission
47 Nashua Road
P.O. Box 319
Pepperell, MA 01463

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Pepperell Wastewater Treatment Plant (WWTP)
47 Nashua Road, Route 111
Pepperell, Massachusetts 01463

The Town of Groton is a co-permittee for Permit Part I.B. Unauthorized Discharges, and Part I.C. Operation and Maintenance of the Sewer System, which include conditions regarding the operation and maintenance of the portion of the collection system owned and operated by the Town. The Town is also responsible for the requirements found in Permit Part I.F. State Permit Conditions. The responsible town department is:

Groton Sewer Commission
Groton Town Hall, 173 Main Street, Groton, Massachusetts 01450

RECEIVING WATER: **Nashua River (Segment MA81-07)**

CLASSIFICATION: **Class B, Warm Water Fishery**

LATITUDE: 42º40' 03"N LONGITUDE: 71º34' 32"W

Attachments:

Attachment A - EPA Region 1 NPDES Permitting Approach For Publicly Owned Treatment Works That Include Municipal Satellite Sewage Collection Systems
Attachment B - Discharge Monitoring Report Data
Attachment C - Pepperell WWTP Aerial Photograph
Attachment D - Pepperell WWTP flow Schematic
Attachment E – Industrial Users

Table of Contents

I. Proposed Action, Type of Facility, and Discharge Location

The Town of Pepperell has requested that the U.S. Environmental Protection Agency (EPA) reissue its NPDES permit to discharge into the Nashua River. The Pepperell Wastewater Treatment Plant (WWTP) is engaged in the collection and treatment of municipal and industrial wastewater.

The Pepperell Wastewater Treatment Plant (WWTP) receives domestic and industrial wastewater from sanitary sewage collection systems in the Towns of Pepperell and Groton. Because its sewerage system connects to the Pepperell WWTP, the Town of Groton appears as a co-permittee on the permit for conditions related to the operation and maintenance of collection systems. The facility also receives up to 4,000 gallons per day of septage from Pepperell and Groton.

The existing NPDES permit was signed on November 22, 2005, became effective on January 21, 2006 and expired on January 21, 2011. The applicant filed a complete application as required by 40 Code of Federal Regulations (CFR) Part 122.6, so the existing permit has been administratively extended and will remain in effect until a renewed permit has been issued. The existing permit and Draft Permit authorize the facility to discharge only from Outfall 001. The Draft Permit has been written to reflect the current operations and conditions at the facility.

II. Description of Discharge

A quantitative description of the treatment plant's discharge in terms of significant effluent parameters based on recent effluent monitoring data may be found in Attachment B.

III. Receiving Water Description

The Pepperell WWTP discharges to segment MA81-07 of the Nashua River as stated on page 74 of the Nashua River Watershed 2003 Water Quality Assessment Report published by Massachusetts Department of Environmental Protection (MassDEP) in August, 2008. A copy of the Assessment Report can be reviewed at https://www.mass.gov/eea/agencies/massdep/water/watersheds/water-quality-assessments.html. The river segment begins at the Pepperell Dam (at the end of the Pepperell Pond) and flows 3.7 miles to the New Hampshire State Line at Pepperell/Dunstable.

MassDEP Division of Watershed Management (DWM), recorded aesthetic field observations at one site in 2003. There were no field observations indicating prolonged or frequent occurrences of objectionable deposits, odors, turbidity or color, floating scum, or overabundant growths of aquatic plants or algae. An Alert Status is identified for this segment due to elevated phosphorus. The DWM survey recommends: Continue monitoring total phosphorus concentrations and biological responses to evaluate the effectiveness of the Nashua River Total Phosphorus Total Maximum Daily Load (TMDL) implementation.

MassDEP lists segment MA81-07 of the river as a Class B Warm Water Fishery:

> *These waters are designated as 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 objective of the Clean Water Act (CWA or the Act) 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 the 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 the states to provide the status of all their assessed waters in one list. States choosing this option must list each water body or segment in one of the following five categories:

1) Unimpaired and not threatened for all designated uses;
2) Unimpaired waters for some uses and not assessed for others;
3) Insufficient information to make assessments for any uses;
4) Impaired or threatened for one or more uses but not requiring the calculation of a Total Maximum Daily Load (TMDL); and
5) Impaired or threatened for one or more uses and requiring a TMDL. Section 303(d) of the CWA requires states to identify and list those water bodies that are not expected to meet surface water quality standards after the implementation of technology based controls and, as such, require the development of Total Maximum Daily Load.

MassDEP combines the requirements in Sections 305(b) and 303(d) of the CWA into the "*Final Massachusetts Year 2012 Integrated Lists of Water"* report (2012 Integrated List), available at http://www.mass.gov/eea/docs/dep/water/resources/)7v5/12list2.pdf.[1] Segment MA81-07 of the Nashua River is listed as not being in non-attainment of state water quality standards and is listed as a Category 5 Water, "Waters requiring a TMDL", with specific impairments including Phosphorus (Total) and Aquatic Macroinvertebrate Bioassessments (see page 161 of the report) needing a TMDL.

[1] MassDEP. 2010.. *Nashua River Watershed 2003 Water Quality Assessment Report*, CN 360.0 Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA.

IV. Limitations and Conditions

The effluent limitations and all other requirements described in Part VII of this Fact Sheet can be found in the draft NPDES permit.

Permit Basis: Statutory and Regulatory Authority

The Clean Water Act (CWA or the Act) prohibits the discharge of pollutants to waters of the United States without an NPDES permit unless such a discharge is otherwise authorized by the Act. A NPDES permit is used to implement technology-based and water quality-based effluent limitations, as well as other requirements, including monitoring and reporting. This draft NPDES permit was developed in accordance with statutory and regulatory authorities established pursuant to the Act. The regulations governing the NPDES program are found in 40 CFR Parts 122, 124, and 125.

EPA is required to consider technology- and water quality-based requirements when developing permit effluent limits. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 402 and 301(b) of the Act. Under Section 301(b)(1)(B) of the CWA, publicly owned treatment works (POTWs) must have achieved effluent limitations based upon secondary treatment by July 1, 1977. The secondary treatment requirements are set forth at 49 CFR Part 133.

Under Section 301(b)(1)(C) of the CWA, discharges are subject to limits more stringent than technology-based limits where necessary to meet water quality standards. The Massachusetts Surface Water Quality Standards (MA SWQS) include requirements for the regulation and control of toxic constituents and also require that EPA criteria, established pursuant to Section 304(a) of the CWA, be used unless a site specific criterion is established. Massachusetts Surface Water Quality Standards also require that discharges of pollutants to surface waters be limited or prohibited to assure that surface water quality standards of the receiving waters are protected and maintained or attained. See 314 CMR 4.03(1)(a).

EPA regulations at 40 CFR 122.44(d)(1)(i), require that the permit limit any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that caused, has reasonable potential to cause, or contributes to an excursion above any water quality criterion. An excursion occurs if the projected or actual in-stream concentrations exceed the applicable criterion. In determining reasonable potential, EPA considers existing controls on point and non-point sources of pollution, variability of the pollutant in the effluent, sensitivity of the species to toxicity and, where appropriate, the dilution of the effluent in the receiving water.

Anti-Backsliding

A permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirement of the CWA. EPA's anti-backsliding provisions, found in Sections 402(o) and 303(d)(4) of the CWA and at 40 CFR 122.44(l), prohibit the relaxation of permit limits, standards, and conditions, except under certain, limited conditions.

Therefore, the effluent limits in the reissued permit must be at least as stringent as those in the previous permit, unless a relaxation is allowed under the provisions of the law and regulations. All limitations in the draft permit are as or more stringent than those in the current permit.

Anti-Degradation

The Massachusetts anti-degradation regulations (314 CMR 4.04) require that all existing uses of the Nashua River must be protected. MassDEP has indicated that it believes there will be no lowering of water quality and/or no loss of existing water uses for this segment of the river as a result of the Draft Permit and that no additional anti-degradation review is warranted.

V. Facility Information

The Pepperell WWTP flow enters the plant headworks which consist of a bar rack and a grit channel. From the headworks, flow then goes to 3 influent wet wells for distribution to 6 fine bubble aeration tanks, followed by 2 secondary clarifiers, and ultraviolet (UV) disinfection. The facility has discontinued the use of sodium hypochlorite for disinfection.

The waste sludge is aerobically digested and dewatered with a belt filter press. The dewatered sludge is mixed with woodchips and composted and made available to the public.

The collection system consists of separate sewers, serving 6,084 people, 4371 in Pepperell and 1713 in Groton.

VI. Derivation of Effluent Limits under the Federal CWA and the Commonwealth of Massachusetts Water Quality Standards

A. FLOW

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 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 water quality-based effluent limitations (WQBEL) calculations to ensure compliance with water quality standards under Section 301(b)(1)(C). Should the effluent discharge flow exceed the flow assumed in these calculations, the instream dilution would decrease and the calculated effluent limits may not be protective of WQS. Further, pollutants that do not have the reasonable potential to exceed WQS at the lower discharge flow may have reasonable potential at a higher flow due to the decreased dilution.

In order to ensure that the assumptions underlying the 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" effluent wastewater flow assumption through imposition of permit conditions for effluent flow. Thus, the effluent flow limit is a component of WQBELs because the WQBELs are premised on a maximum level of flow. In addition, the flow limit is necessary to ensure that other pollutants remain at levels that do not have a reasonable potential to exceed WQS.

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

Similarly, EPA's reasonable potential regulations require EPA to consider "where appropriate, the dilution of the effluent in the receiving water," 40 C.F.R. § 122.44(d)(1)(ii), which is a function of *both* the wastewater effluent flow and receiving water flow. EPA guidance directs that this "reasonable potential" (RP) 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 sewage effluent flow is within EPA's authority to condition a permit in order to carry out the objectives of the Act. *See* CWA §§ Sections 402(a)(2) and 301(b)(1)(C); 40 C.F.R. §§ 122.4(a) and (d); 122.43 and 122.44(d). A condition on the discharge designed to protect EPA's WQBEL and RP calculations is encompassed by the references to "condition" and "limitations" in 402 and 301 and implementing regulations, as they are designed to assure compliance with applicable water quality regulations, including antidegradation. Regulating the quantity of pollutants in the discharge through a restriction on the quantity of wastewater effluent is consistent with the overall structure and purposes of the CWA.

In addition, as provided in Part II.B.1 of this permit and 40 C.F.R. § 122.41(e), the permittee is required to properly operate and maintain all facilities and systems of treatment and control. Operating the facilities wastewater treatment systems as designed includes operating within the facility's design effluent flow. Thus, the permit's effluent flow limitation is necessary to ensure proper facility operation, which in turn is a requirement applicable to all NPDES permits. *See* 40 C.F.R. § 122.41.

The annual rolling average flow limit in the Draft Permit is the same as in the existing permit, 1.1 mgd (1.7 cfs). The 12-month average flow for 2013 was 0.48 mgd. The maximum daily flow rate for 2013 was 0.74 mgd. Flow is to be measured continuously. The permittee shall report the annual average monthly flow using the annual rolling average method (See Permit Footnote 2). The maximum, minimum and total flow for each operating date shall also be reported**.**

7Q10 and 30Q10 Data and Dilution Factors

The 7-day mean stream low flow with a 10-year recurrence interval (7Q10) is used to calculate the effluent limits in the draft permit (314 CMR 403(3)(b)). To estimate the 7Q10, at the point of discharge from the WWTP, flow and drainage area data from nearby USGS gaging stations is examined and proportioned to the drainage area at the discharge.

The nearest upstream gaging station to the WWTP is *Nashua River at East Pepperell*, which is about 1 mile upstream of the WWTP discharge in the Nashua River. Both the Nissitissit River and Reedy Meadow Brook enter the Nashua River between the East Pepperell (Nashua River gage) and the WWTTP. The total flows measured by the three gages comprise the available dilution.

The drainage area between the gaging stations and the outfall is only 1.5 square miles, or less than 0.5% of the total drainage area. Therefore, for the purposes of calculating the dilution factors, no adjustment is made for the additional area.

The 30Q10 is defined as the mean stream flow for thirty consecutive days with a ten year recurrence interval and was used to calculate cold weather water quality based limits in the draft permit.

The 7Q10 flows, the 30Q10 flows and drainage areas at these stations are shown in the table below. The United States Geological Survey (USGS) streamflow gage in East Pepperell has a drainage area of 435 square miles (mi^2). The drainage area for this station excludes 119 square miles (mi^2) diverted for use by the City of Worcester and the Massachusetts Water Resources Authority. (435 mi^2 -119 mi^2 = 316 mi^2). The raw USGS gage data is run through EPA's DFLOW tool to calculate 7Q10 and other low flow dilutions

The 2005 Fact Sheet based the dilution calculations using the entire available USGS river flow data set for the period of record (1937-2012). For this permit reissuance, the most recent twenty year (Since October of 1993) USGS period of record was used, rather than the entire period of record, which began in 1937 to recalculate the 7Q10 dilution.

The more recent data will better reflect development and water withdrawals from the watershed. Since the previous permit reissuance, the *Nissitissit River* and *Reedy Meadow Brook gage* stations have become inactive. The two small streams (1.5 cfs) with inactive gages account for 4% of the 39.6 cfs total 7Q10 base flow. Only the *East Pepperell gage* data has been updated for this permit reissuance. The 7Q10 dilution factor has decreased from 27 to 24.3 (9%) based on the updated Pepperell gage data.

Table 1.

Minimum Flow and Drainage Area	Station No. 1096500 East Pepperell	Station No.[2] 01096503 Nissitissit River	Station No.[3] 01096054 Reedy Meadow Brook	Total[4]
7Q10 Flow (cfs)	38.1	1.3	0.2	39.6 (44.9)
30Q10 Flow (cfs) May 1-October 31	80.0	2.3	0.4	82.7 (81.5)
30Q10 Flow (cfs) November 1- April 30	155	3.7	1.3	160.0 (137.0)
Drainage Area (miles^2)	316	59.6	1.9	377.5

The resulting 7Q10 flow and dilution factor are calculated below.

Design Flow = 1.1 mgd = 1.7 cfs

7Q10 Dilution Factor: (39.6 cfs + 1.7 cfs) ÷ 1.7 cfs = **24.3**
30Q10 Dilution Factor (May 1-October 31): (82.7 cfs + 1.7 cfs) ÷ 1.7 cfs = 49.6

30Q10 Dilution Factor (November 1- April 30): (160.0 cfs + 1.7 cfs) ÷ 1.7 cfs = 95.1

B. CONVENTIONAL POLLUTANTS

Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS)

Under Section 301(b)(1)(B) of the Clean Water Act (CWA), Publicly Owned Treatment Works (POTW's) had to achieve effluent limitations based upon secondary treatment by July 1, 1977. The secondary treatment requirements for biochemical oxygen demand (BOD_5) and total suspended solids (TSS) are set forth in 40 CFR Part 133. The 30-day average percent removal limit of at least 85% for BOD_5 and TSS is based on the requirements in 40 CFR 133.102.

During the previous (2005) permit reissuance, the Town requested an increase in the permitted flow from 0.705 mgd to 1.1 mgd. Because antidegradation (40 CFR §131.12) applied to the mass loadings (i.e. lbs/day) for both BOD and TSS, the loadings from the previous permit were retained. The revised concentration limits were calculated as follows and are retained in the draft permit:

Concentration limits = lbs/day ÷ (Effluent Flow x Conversion Factor)

Average monthly 176 lbs/day ÷ (1.1 mgd x 8.34(lb)(l)/(mg)(gal)) = 19 mg/l

Average weekly 264 lbs/day ÷ (1.1 mgd x 8.34 (lb)(l)/(mg)(gal) = 29 mg/l

[2] Continuous stream flow data for this site is unavailable beyond September 30, 2007
[3] Stream flow Statistics for Low-Flow Partial-Record Stations Operated in Massachusetts from 1989 Through 1996
[4] The values in parenthesis are from the 2005 Fact Sheet for comparison.

The Draft Permit also contains 85% BOD_5 and TSS removal limitations based on the requirements of 40 CFR 133.102(3). These limitations are the same as in the existing permit. A review of DMR data for January 2010 through December 2013 finds no reported exceedances of BOD_5 or TSS limitations.

pH

The Draft Permit has pH limits that are at least as stringent as the requirements set forth at 40 CFR 133.102(c) and the MA SWQS at CMR 4.05(3)(b)3. The State's water quality standards require Class B waters maintain a pH range of 6.5 through 8.3 standard units (SU) with not more than 0.5 standard units outside of the receiving water background range. The water quality standards also require there be no change from background conditions that would impair any use assigned to this class. During the period of January 2010 through December 2013, the minimum reported pH was 5.9 SU, with the average of monthly minimums being 6.5 SU, a maximum reading of 8.0, and the average of monthly maximums being 7.3 SU.

Fecal coliform bacteria and Escherichia coli (*E. coli*) bacteria

On December 29, 2006 MassDEP revised the bacteria criteria in its water quality standards for Class B waters, changing the criteria from fecal coliform bacteria to *Escherichia coli* (*E. coli)* bacteria. EPA approved this revision on September 19, 2007. The permittee shall transition from fecal coliform limits to *E. coli* with this permit reissuance. The *E. coli* bacteria limitations are a monthly average geometric mean of 126 colony forming units per 100 ml (cfu/ml) and a maximum daily value of 409 cfu/100 ml. The maximum daily value is 90% distribution of the geometric mean of 126 cfu/100 ml. The monitoring frequency remains once per week.

The Massachusetts Water Quality Standards (WQS) Implementation Policy allows for seasonal disinfection. However, the Nashua River flows into New Hampshire where WQS do not allow for seasonal disinfection. Therefore, the permit requires year-round disinfection of the effluent.

C. NON-CONVENTIONAL POLLUTANTS

EPA is required to limit any pollutant or pollutant parameter that is or may be discharged at a level that causes, has reasonable potential to cause, or contributes to an excursion above any water quality criterion. 40 C.F.R. § 122.44(d).

Metals

Certain metals in water can be toxic to aquatic life. There is a need to limit toxic metal concentrations in the effluent where aquatic life may be impacted. An evaluation of the concentration of metals in the facility's effluent—from Whole Effluent Toxicity (WET) reports submitted for calendar years, 2011 through 2013—were used to determine reasonable potential for toxicity caused by aluminum, cadmium, chromium, copper, lead, nickel and zinc.

Metals may be present in both dissolved and particulate forms in the water column. However, extensive studies suggest that it is the dissolved fraction that is biologically available and, therefore, presents the greatest risk of toxicity to aquatic life inhabiting the water column. This conclusion is widely accepted by the scientific community both within and outside of EPA (Water Quality Standards Handbook: Second Edition, Chapter 3.6 and Appendix J, EPA 1994 [EPA 823-B-94-005a]). Also see http://www.epa.gov/waterscience/standards/handbook/chapter03.html#section6. 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, and differences in the chemical composition between the effluent and the receiving water affect the partitioning of metals between the particulate and dissolved fractions as the effluent mixes with the receiving water, often resulting in a transition from the particulate to dissolved form (*The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion* (USEPA 1996 [EPA-823-B96-007]).

Consequently, quantifying only the dissolved fraction of metals in the effluent prior to discharge may not accurately reflect the biologically-available portion of metals in the receiving water. Regulations at 40 CFR 122.45(c) require, with limited exceptions, that metals limits in NPDES permits be expressed as total recoverable metals.

Hardness Dependent Metals

EPA Office of Water's Office of Science and Water Technology stated in a letter dated July 7, 2000 that "[t]he hardness of water containing the discharged toxic metal should be used for determining the applicable criterion. Thus, the downstream hardness should be used." The theoretical hardness of the Nashua River downstream of the treatment plant under 7Q10 low flow conditions were calculated based on ambient and effluent hardness data reported in the recent toxicity tests conducted in 2010, 2011, and 2013 in Table 2, Nashua River Hardness. The hardness is reported as an equivalent concentration of calcium carbonate.

Table 2. Nashua River Hardness

WET Test Date	Effluent Hardness, mg/l	Ambient Hardness, mg/l
13-Sep	95	35
13-Jun	97	22
12-Sep	81	50
12-Jun	78	27
11-Sep	82	26
11-Jun	83	30
Average	**86**	**32**

Calculation of hardness in the receiving water downstream of the WWTF:
In order to determine the hardness downstream of the treatment plant during the 7Q10 low flow periods, the effluent and ambient hardness values from whole effluent toxicity tests conducted in June and September were used in the mass balance equations:

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

Where:
Q_s = 7Q10 river flow upstream of plant is 39.6 cfs
Q_d = Effluent flow from plant is 1.1 mgd (1.7 cfs)
Q_r = Combined river flow (7Q10 + plant flow) is 41.3 cfs
C_s = Upstream hardness concentration is 32 mg/l
C_d = Effluent hardness is 86 mg/l
C_r = Receiving water hardness downstream is mg/l

Calculation:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Qr} = \frac{(1.7 \text{ cfs})(86 \text{ mg/l}) + (39.6 \text{ cfs})(32 \text{ mg/l})}{(41.3 \text{ cfs})} = 34 \text{ mg/l}$$

Water Quality Criteria equation for hardness-dependent metals:
Chronic criteria (dissolved) = $\exp\{m_c [\ln (\text{hardness})] + b_c\}$ (CF)

Where :
m_C = pollutant-specific coefficient
b_C = pollutant-specific coefficient
h = hardness of the receiving water = 34 mg/l as $CaCO_3$
ln = natural logarithm
CF = pollutant specific conversion factor used to convert total recoverable to dissolved metal

Acute criteria (dissolved) = $\exp\{m_A [\ln (\text{hardness})] + b_A\}$ (CF)

Where:
m_A = pollutant-specific coefficient
b_A = pollutant-specific coefficient
h = hardness of the receiving water = 34 mg/l as $CaCO_3$
ln = natural logarithm
CF = pollutant specific conversion factor used to convert total recoverable to dissolved metal

The facility's effluent metals concentrations (See Table on Page 12 of this Fact Sheet) were examined for reasonable potential to cause or contribute to an in-stream exceedance of State Water Quality Criteria. For metals with hardness-based water quality criteria, the criteria were determined using the equations in the *National Recommended Water Quality Criteria: 2002*, using the appropriate factors for the individual metals found in the MA SWQS (see table below). The downstream hardness was calculated to be 34 mg/l as CaCO3, using the above mass balance equation with the design flow, and receiving water 7Q10. The downstream hardness was used to determine the total recoverable metals criteria. The following table presents the factors used to determine the acute and chronic total recoverable criteria for each metal:

Metal	Parameters				Total Recoverable Criteria	
	ma	ba	mc	bc	Acute Criteria (CMC)* (ug/L)	Chronic Criteria (CCC)** (ug/L)
Aluminum	—	—	—	—	750	87
Cadmium	1.0166	-3.924	0.7409	-4.719	0.903	0.122
Copper	0.9422	-1.7000	0.8545	-1.7020	5.07	3.76
Lead	1.2730	-1.4600	1.2730	-4.7050	20.68	0.81
Nickel	0.8460	2.2550	0.8460	0.0584	188.35	20.94
Zinc	0.8473	0.8840	0.8473	0.8840	48.03	48.03

*Acute Criteria (CMC) = $\exp\{m_A*\ln(\text{hardness})+b_A\}$
**Chronic Criteria (CCC) = $\exp\{m_C*\ln(\text{hardness})+b_C\}$

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

$$Q_d C_d + Q_S C_S = Q_r C_r$$

rewritten as:

$$C_r = \frac{Q_d C_d + Q_S C_S}{Q_r}$$

Where:

Q_d = effluent flow (design flow = 1.1 mgd = 1.7 cfs)
C_d = maximum effluent metals concentration in ug/L
Q_s = stream flow upstream (7Q10 upstream = 39.6 cfs)
C_s = background in-stream metals concentration in ug/L (median)
Q_r = resultant in-stream flow, after discharge ($Q_S + Q_d$ = 41.3 cfs)
C_r = resultant in-stream concentration in ug/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 to determine if there is reasonable potential for an excursion above the maximum allowable concentration.

If there is reasonable potential (for either acute or chronic conditions), the appropriate limit is then calculated by rearranging the above mass balance to solve for the effluent concentration (C_d) using the criterion as the resultant in-stream concentration (C_r). See the table on page 16 for the results of this analysis with respect to aluminum, cadmium, chromium, copper, lead, nickel and zinc.

The EPA Region I Whole Effluent Toxicity Protocols require that dilution water samples be tested for a suite of metals. These samples are generally taken above the permittee's outfall. This data is used by EPA and MassDEP to determine the background concentration of metals at the point of discharge. An increase in background metals concentration decreases the assimilative capacity of the receiving water for those metals. If the background or ambient concentration is above the state water quality criteria, the new permit limit for that metal will be equal to the criteria.

The permittee registered concerns with the ambient metals sample data provided previously to EPA and MassDEP. Representatives of the town notated that the up-stream sample was located above the Pepperell Dam and not likely representative of the ambient conditions near the point of the WWTP discharge. Further, the sampling techniques were less than optimum. EPA recommends that "clean sampling techniques" be used when collecting ambient data to guard against sample contamination. Some background concentrations for both lead and copper were above the instream criteria.

Currently, the most sensitive EPA approved test method for copper and lead, inductively coupled plasma - mass spectrometry, EPA Method 200.8, provides the most reliable data at or below the respective criteria concentrations.

Concerned that the previously provided data that was analyzed with the less sensitive EPA Method 200.7, may not be representative of actual levels, the permittee undertook a multi-location sampling project employing clean sampling techniques and EPA method 200.8. The new results found on page 16 of this fact sheet are used in the mass balance equations to determine reasonable potential.

EPA used the relatively small new data set (see page 16) in making its determination whether there is a reasonable potential (under either acute or chronic conditions) that the discharge of total recoverable copper and total recoverable lead will cause or contribute to an exceedance of applicable water quality criteria. Because a relatively limited data set was available to refute previously collected total copper and lead sample results, EPA is cautiously retaining total copper limits in the draft permit and monitoring requirements for lead, while additional metals data is collected. The new total recoverable copper limits in the draft permit are more stringent than those found in the current permit as upstream copper data is used in calculation of the new limits.

To develop a more robust data set for the next permit reissuance, the draft permit requires monthly sampling for lead and copper, both instream (at the same point as WET dilution water will be collected) and of the effluent during the low river flow months of June through September of each year. The current WET Protocol specifies that dilution water be collected as follows:

> 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.

The draft permit will require that tests for total recoverable copper and total recoverable lead use EPA Method 200.8, which has a ML of 0.5 ug/l. If EPA approves a method with equivalent or lower ML, the permittee may us the new method. EPA recommends that the permittee also use "clean sampling techniques" as described in EPA Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, EPA 821-R-95-034, April 1995. See: http://www.caslab.com/EPA-Methods/PDF/1669.pdf. The lower detection level is required so that future reasonable potential calculations may be made with greater confidence.

The frequency of sampling for total recoverable copper and for total recoverable lead shall be once per month, during the months of June, July, August, and September. The June and September samples may be taken as part of the biannual WET testing procedure. Ambient metals monitoring may be taken as grab samples.

Effluent ug/l							Ambient ug/l						2014 New Clean Ambient ug/l			
Pram	Al	Cd	Cu	Pb	Ni	Zn	Al	Cd	Cu	Pb	Ni	Zn	Data		Cu	Pb
13-Sep	82	ND	25	ND	3	53	40	ND	6	4.0	ND	13	Sept	SS-1	1.1	0.57
13-Jun	92	ND	31	ND	3	50	150	ND	24	3.0	ND	80	Sept	SS-2	1.2	0.29
12-Sep	110	ND	22	ND	3	50	40	ND	8	0.1	2	5	Sept	SS-3	1.1	0.56
12-Jun	79	ND	13	0.7	ND	52	76	ND	9	3.0	ND	11	Nov	SS-1	0.7	0.48
11-Sep	81	ND	9	ND	2	45	65	ND	4	2.0	ND	7	Nov	SS-2	2.1	2.9
11-Jun	66	ND	20	ND	2	53	58	ND	5	1.5	4	N/A	Nov	SS-3	0.81	0.93
Ave	85	ND	20	0.7	2.6	50.5	71.5	ND	9.33	2.3	3	23.2			1.17	0.96
Max	110	ND	31	0.7	3	53	150	ND	24	4.0	4	80			2.1	2.9
Median							62	ND	6	2.5	3.5	11			1.10	0.57

MDL for Lead and Nickel = 0.5 ug/l

Metal	**Qd**	**Cd[1]**	**Qs**	**Cs[2] (Median)**	**Qr = Qs + Qd**	**Cr = (QdCd+QsCs)/Q_R**	**Reasonable Potential?**	**Limit = (Qr*Criteria-Qs*Cs)/Qd**	
	cfs	**ug/l**	**cfs**	**ug/l**	**cfs**	**ug/l**	**Cr > Criteria**	**Acute (ug/l)**	**Chronic (ug/l)**
Aluminum	**1.7**	**110**	**39.6**	**62**	**41.3**	**64**	**N**	**N/A**	**N/A**
Cadmium		**ND**		**ND**		**N/A**	**N**	**N/A**	**N/A**
Copper		**31**		**1.1**		**2.3**	**N[3]**	**97.5**	**65.7**
Lead		**0.7**		**0.57**		**0.58**	**N**	**N/A**	**N/A**
Nickel		**3**		**3.5**		**3.5**	**N**	**N/A**	**N/A**
Zinc		**53**		**11**		**12.7**	**N**	**N/A**	**N/A**

[1] Values calculated using data from the 2011-2013 WET testing (see below).
[2] Median upstream data taken from Whole Effluent Toxicity (WET) testing on the Nashua River just upstream of the WWTF.
[3] Because of the limited amount of new data, copper limits are being retained in this draft permit despite C_r <criteria, However the limits have been calculated using the updated dilution factor and the newer upstream ambient copper data.

Ammonia

Because ammonia can be toxic to aquatic life at elevated levels and can impact the dissolved oxygen concentration of the receiving water, EPA and the MassDEP are concerned about ammonia levels impacting the receiving water.

The September 16, 2005 Fact Sheet that accompanied the November 22, 2005, permit reissuance explained that the design flow for the Pepperell WWTF increased from 0.705 mgd in the June 6, 2002 permit to 1.1 mgd. The state antidegradation provisions required that there be no increase in the load (mass) of ammonia discharged to the Nashua River. The following (italics) is from that Fact Sheet:

> *The 1999 Update of Ambient Water Quality Criteria for Ammonia established instream criteria for toxicity dependent upon the pH and temperature of the receiving water. The Federal Register, Volume 64, No. 245 published on December 22, 1999, recommended a 30Q10 flow to generate the average monthly concentration limits.*
>
> *For the summer months, a pH of 7.1 and an estimated temperature of 26○ C were used to determine the instream criteria and the theoretical summer permit limit is calculated as follows.*
>
> *2.7 mg/l (instream criteria) * 49 (30Q10 dilution factor) = 132 mg/l*
>
> *For the winter months, a pH of 7.1 and an estimated temperature of 0° C were used to determine the instream criteria and the theoretical winter permit limit is calculated as follows.*
>
> *5.67 mg/l (instream criteria) * 82 (30Q10 dilution factor) = 465 mg/l*
>
> *The examination of data from the Pepperell WET tests suggests that the ammonia levels in the discharge are below these calculated limits* [see below]. *However, the antidegradation provisions must also be applied due to the particular concern of oxygen demand exerted by ammonia in the summer months during periods of low flow.*
>
> *Discharges from a secondary treatment facility normally contain approximately 15 - 20 mg/l of ammonia. With the existing permitted flow of 0.705 mgd, the Pepperell WWTF discharged approximately 88 lbs/day of ammonia as shown below.*
>
> *0.705 mgd * 8.34 conversion factor * 15 mg/l = 88 lbs/day*
>
> *Maintaining this mass loading of ammonia with the revised design flow requires a concentration limit of: 88 lbs/day ÷ (8.34 * 1.1 mgd) = 9.6 = 10 mg/l*

Consequently, the draft permit contains a seasonal monthly average ammonia limit of 10 mg/l for the period of May through October when dissolved oxygen levels are typically the lowest. The weekly average limit for ammonia is calculated as twice the average monthly limit in accordance with the National Recommended Water Quality Criteria.

Updated projected water quality limits based on ammonia toxicity (new dilutions and pH)

In order to update the pH downstream of the treatment plant during the 7Q10 low flow periods, the effluent and ambient pH values from whole effluent toxicity tests conducted in 2010 through 2012 were used in the mass balance equations:

Date	Ambient pH from WET Reports (SU)
9/10	6.80
9/11	6.65
6/12	6.95
9/12	7.00
6/13	6.90
9/13	6.63
Average	**6.82 SU**

Effluent average pH from discharge Monitoring Reports is 6.8 SU for 24 months from 10/01/10 through 12/31/13.

For the summer months [May 1-October 31](, a pH of 6.8 and an estimated temperature of 26° C were used to determine the chronic in-stream criteria and the theoretical summer permit limit is calculated as follows.

1.4 mg/l (in-stream criteria chronic) * 50 (30Q10 dilution factor) = 7**0** mg/l

For the winter months, a pH of 6.8 and an estimated temperature of 0° to 7° C were used to determine the in-stream chronic criteria and the theoretical winter permit limit is calculated as follows.

4.6 mg/l (in-stream criteria chronic) * 160 (30Q10 dilution factor) = **736** mg/l

A pH of 6.8 and an estimated temperature of 26**°** C are used to determine the in-stream acute theoretical summer permit limit as follows.

12 mg/l (in-stream criteria acute) * 28 (7Q10 dilution factor) =**336** mg/l

A pH of 6.8 and an estimated temperature of 0° to 7° C are used to determine the in-stream acute theoretical winter permit limit as follows.

44 mg/l (in-stream criteria acute) * 28 (7Q10 dilution factor) =**1232** mg/l

There is no reasonable potential for ammonia to exceed the in-stream acute or chronic criteria for toxicity. Ammonia does depress dissolved oxygen, and therefore, the permit limits for ammonia are carried forward from the previous permit.

Phosphorus

The draft permit reduces the current summer total phosphorus (TP) limit from a monthly average of 1.0 mg/l to 0.5 mg/l (April through October) and replaces the winter monthly average TP monitoring requirement with a 1.0 mg/l monthly average (November through March) limit. The draft permit establishes a 4.6 lbs/day monthly average loading for TP. The existing monitoring requirements for orthophosphorus (report only, November to March) are continued.

State water quality standards require any point source discharge containing nutrients in concentrations that encourage eutrophication or growth of weeds or algae be provided with treatment to remove such nutrients. Phosphorus and other nutrients promote the growth of nuisance algae and aquatic plants. When these plants and algae undergo their decay processes, they generate strong odors, result in lower dissolved oxygen levels in the river and impair the benthic habitat.

The MA SWQS (314 CMR 4.00) do not contain numerical criteria for total phosphorus. The narrative criteria for nutrients is found at 314 CMR 4.05(5) (c), which states that nutrients "shall not exceed the site specific limits necessary to control accelerated or cultural eutrophication." The Standards also require that "any existing point source discharges containing nutrients in concentrations which encourage eutrophication or the growth of weeds or algae shall be provided with the highest and best practicable treatment to remove such nutrients" (314 CMR 4.04).

The effects-based Gold Book (Quality Criteria for Water 1986) threshold is a general target applicable in free-flowing streams. As the Gold Book notes, there are natural conditions of a water body that can result in either increased or reduced eutrophication response to phosphorus inputs; in some waters more stringent phosphorus reductions may be needed, while in some others a higher total phosphorus threshold could be assimilated without inducing a eutrophic response. In this case EPA is not aware of any evidence that the Nashua River is unusually susceptible to eutrophication impacts, so that the 100 ug/l threshold appears sufficient in this receiving water. With respect to factors that can reduce susceptibility, the Gold Book identifies morphometric features (steep banks, great depths and substantial flows), limitation by nutrients other than phosphorus, reduced light penetration where waters are highly laden with natural silts or color, or other naturally occurring phenomena that limit plant growth[5].

5 The Gold Book also includes waters where "technological or cost-effective limitations may help control induced pollutants"; "waters managed primarily for waterfowl or other wildlife" and waters where "phosphorus control cannot be sufficiently effective under present technology to make phosphorus the limiting nutrient". As these factors do not address water body response but instead alternative technological solutions or changes in management goals, EPA does not consider them as altering the threshold necessary to meet the narrative water quality standard.

EPA is not aware of evidence that any of these factors are reducing eutrophic response in the Nashua River downstream of the discharge

As previously noted, the free flowing segment of the Nashua River into which Pepperell discharges is listed by MassDEP as needing a TMDL for "aquatic macroinvertabrate bioassessments and total phosphorus". The State submitted a revised draft TMDL on January 8, 2014 to EPA for approval. The draft TMDL establishes recommended limits for total phosphorus from the Pepperell WWTF.

EPA's Environmental Appeals Board has consistently ruled (40 CFR § 122.44(d)) that all facilities with reasonable potential to cause or contribute to excursions of State Water Quality Standards are required to have WQBELs in their NPDES permits. Upon permit reissuance, even if a TMDL is not yet complete, the NPDES permit must include WQBELs. WQBELs developed in advance of a TMDL should consider available draft TMDL waste load allocations.

The Draft Nashua River TMDL is based on dry-weather water quality sampling and assessment, sediment chemistry and toxicity, biological sampling and assessments, and water-column and effluent toxicity testing, together with nonpoint source modeling utilizing both BASINS and HSPF12, and steady state wasteload allocation modeling with QUAL2E. Data was collected from 1998-2008.[6]

The recommended implementation for this TMDL is primarily changes to WWTF NPDES discharge limits based on model results which indicate the greater importance of point sources compared to non-point sources during summer low-flow conditions through the input of nutrients in the readily available form of dissolved phosphorus.

The 1999 data is representative of critical low flow conditions. The few quality assured in-stream total phosphorus samples collected more recently (2008), were taken during high flow events (6-7 times 7Q10) and are not useful for predicting phosphorus concentrations during critical conditions.

Model results show phosphorus reductions to 0.2 mg/l for the main stem above Pepperell Impoundment and 0.5 mg/l for the South Branch and Pepperell WWTF, along with a 20% reduction in non-point source phosphorus, are expected to achieve the needed reductions in the Nashua River at Pepperell, to eliminate impacts caused by excessive nutrient loads.

In order for the 0.5 mg/l TP permit to work achieve an in-stream TP criteria of 100 ug/l, the upstream TP concentration in the river will need to be reduced to 83 ug/l. EPA does not have reliable data on the present upstream TP.

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

[6] Nashua River, Massachusetts, Total Maximum Daily Load for the Nutrient Phosphorus, MassDEP DWM TMDL, (Report # 81–TMDL-4, CN 305.2)

Where:
Q_s 7Q10 river flow upstream of plant is 39.6 cfs
$Q_{d,,}$ Effluent flow from plant is 1.1 mgd (1.7 cfs)
$Q_{r,}$ Combined river flow (7Q10 + plant flow) is 41.3 cfs
$C_{s,}$ Upstream TP concentration ug/l/l
C_d Effluent TP is 500 ug/l
C_r Receiving water TP downstream is 100 ug/l

Calculation:

$$C_S = \frac{(41.3 \text{ cfs} * 100 \text{ ug/l}) - (1.7 \text{ cfs} * 500 \text{ ug/l})}{39.6 \text{ cfs}} = 82.8 \text{ ug/l}$$

Limits of 1.0 mg/l are proposed in the draft TMDL for the winter season to control the fate and transport of particulate phosphorus, which may settle out in the impounded areas.

All NPDES permittees in the Nashua River system in Massachusetts except Pepperell have such winter limits in the draft TMDL. The Pepperell WWTF is the one permittee in Massachusetts discharging below the Pepperell Pond impoundment. It is, however, above the Mine Falls Dam impoundment in Nashua, NH. The draft permit includes a 1.0 mg/l for the winter months. The draft permit includes a mass limit of 4.6 lbs/day as a monthly average limit consistent with the draft TMDL. The draft permit requires seasonal monitoring for ambient or upstream total phosphorus to insure that the 83 ug/l upstream TP target in the draft TMDL is achieved.

The water quality models predict that the waste load allocation for the point sources and non-point sources of phosphorus will cause a corresponding drop in the maximum daily range of dissolved oxygen concentration and percent saturation. Also, lower chlorophyll concentrations are predicted as a result of each reduction in effluent phosphorus concentration from the WWTFs allows water quality standards to be met.

Effluent Phosphorus Concentrations (January 2010 through October 31, 2013)

Winter Months						Summer Months	
	Mon mg/l	Mon mg/l	Mon mg/l	Mon mg/l		1.0 mg/l	Mon mg/l
	O-P Mo Av	O-P Dy Mx	T-P Mo Av	T-P Dy Mx	Date	T-P Mo Av	T-P Dy Mx
01/31/2010	4.66	4.9	3.8	3.85	**04/30/2010**	.5	1.3
02/28/2010	5.31	5.75	3.7	4.23	**05/31/2010**	.47	.53
03/31/2010	3.65	6.44	2.3	2.75	**06/30/2010**	.33	.36
11/30/2010	.58	.83	.67	.72	**07/31/2010**	.4	.47
12/31/2010	1.59	.86	1.07	1.87	**08/31/2010**	.71	.93
01/31/2011	2.86	3.56	2.4	2.8	**09/30/2010**	.89	.95
02/28/2011	3.16	5.82	2.2	3.15	**10/31/2010**	.62	.76
03/31/2011	3.08	4.25	2.1	3.15	**04/30/2011**	.65	.81
11/30/2011	3.08	4.22	3.9	4.8	**05/31/2011**	.98	1.36
12/31/2011	2.08	3.1	1.95	2.98	**06/30/2011**	.82	.93
01/31/2012	2.98	3.37	3.	3.38	**07/31/2011**	.68	.81
02/29/2012	3.48	3.58	3.4	3.57	**08/31/2011**	.71	.91
03/31/2012	3.24	4.8	3.24	4.8	**09/30/2011**	.64	.73
11/30/2012	.51	.66	.89	.98	**10/31/2011**	.78	.94
12/31/2012	2.34	2.85	2.57	3.39	**04/30/2012**	.57	.93
01/31/2013	2.4	3.2	2.5	3.21	**05/31/2012**	.7	.75
02/28/2013	2.47	3.64	3.69	3.95	**06/30/2012**	.7	.98
03/31/2013	2.86	3.58	3.21	3.91	**07/31/2012**	.88	1.
11/30/2013	1.11	1.52	1.42	1.75	**08/31/2012**	.95	1.22
12/31/2013	2.4	3.24	2.73	3.66	**09/30/2012**	.98	1.3
Average	2.7	3.5	2.5	3.1	**10/31/2012**	.63	.67
Max	5.3	6.4	3.9	4.8	**04/30/2013**	.87	.99
					05/31/2013	.84	1.17
					06/30/2013	.74	.84
					07/31/2013	.75	1.09
					08/31/2013	.72	.9
					09/30/2013	.72	.92
					10/31/2013	.85	.95
					Average	0.7	0.9
					Max	1.0	1.4

Whole Effluent Toxicity Testing

Under Section 301(b)(1) of the CWA, discharges are subject to effluent limitations based on water quality standards. The MA SWQS at 314 CMR 4.05(5)(e), include the following narrative statements and require that EPA criteria established pursuant to Section 304(a)(l) of the CWA be used as guidance for interpretation of the following narrative criteria:

All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. For pollutants not otherwise listed in 314 CMR 4.00, the National Recommended Water Quality Criteria: 2002, EPA 822-R-02-047, November 2002 published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department either establishes a site specific criterion or determines that naturally occurring background concentrations are higher.

National studies conducted by the EPA have demonstrated that industrial and domestic sources contribute toxic constituents, such as metals, chlorinated solvents, aromatic hydrocarbons and other pollutants to POTWs. The impact of such complex mixtures is often difficult to assess. Therefore, the toxicity of several constituents in a single effluent can only be accurately examined by whole effluent toxicity testing. In addition, 40 CFR 122.44 (d) requires whole effluent toxicity limits in NPDES permits when the effluent has a reasonable potential to cause toxicity.

The principal advantages of biological techniques are: (1) the effects of complex discharges of many known and unknown constituents can be measured only by biological analysis; (2) bioavailability of pollutants after discharge is measured by toxicity testing including any synergistic effect of pollutants; and (3) pollutants for which there are inadequate analytical methods or criteria can be addressed. Therefore, toxicity testing is used in connection with pollutant-specific control procedures to control the discharge of toxic pollutants.

Therefore, the Draft Permit includes acute whole effluent toxicity limitations and monitoring requirements. (See, e.g., "Policy for the Development of Water quality based Permit Limitations for Toxic Pollutants", 50 Fed. Reg. 30,784-July 24, 1985. See also EPA's Technical Support Document for Water Quality Based Toxics Control, EPA/505-90-001). The LC_{50} limitation prohibits acute effects, lethality, to more than 50% of the test organisms when exposed to POTW undiluted effluent for 48 hours.

The LC_{50} limitation in the Draft Permit is 100% consistent with MassDEP's "Implementation Policy for the Control of Toxic Pollutants in Surface Waters" (February 23, 1990), which requires an effluent limitation of one toxic unit (LC_{50} = 100%) for discharges with dilution factors less than 100.

MP Date	DAILY Minimum Acute LC50 100%
06/30/2009	100.
09/30/2009	100.
06/30/2010	100.
09/30/2010	100.
06/30/2011	100.
09/30/2011	100.
06/30/2012	100.
09/30/2012	100.
06/30/2013	100.
09/30/2013	100.

This Draft Permit continues to require two toxicity tests per year for the daphnid (*Ceriodaphnia dubia*) only. Tests are to be conducted in June and September using the protocols in Attachment A, Freshwater Acute Toxicity Test Procedure and Protocol of the Draft Permit. The current permit (December 2005) established a WET testing frequency of 2 times per year unless the effluent flow exceeded 0.7 mgd for 3 consecutive months, in which case the frequency will increase to quarterly testing. In accordance with the protocol, 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.

VII. NON-DOMESTIC SEWER USERS

The permittee has two Categorical Industrial Users (CIU) contributing industrial wastewater to the WWTF. These are Astron Inc. (Dyed wool products) and Johnson Creative Arts (Metal Fabrication). The permittee has 42 additional commercial sewer connections (see Attachment 5) 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.

VIII. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

The permit standard conditions for "Proper Operation and Maintenance" are found at 40 CFR §122.41(e). These require proper operation and maintenance of permitted wastewater systems and related facilities to achieve permit conditions. Similarly, permittees have a "duty to mitigate" as stated in 40 CFR §122.41(d). This requires permittees to take all reasonable steps to minimize or prevent any discharge in violation of the permit which has the reasonable likelihood of adversely affecting human health or the environment.

In order to ensure proper operation and maintenance of the collection system, the draft permit includes requirements for the permittees to control infiltration and inflow (I/I).

Infiltration is groundwater that enters the collection system through physical defects such as cracked pipes or deteriorated joints. Inflow is extraneous flow entering the collection system through point sources such as roof leaders, yard and area drains, sump pumps, manhole covers, tide gates and cross connections from storm water systems. Significant I/I in a collection system may displace sanitary flow reducing the capacity and the efficiency of the treatment works and may cause bypasses of secondary treatment. It greatly increases the potential for sanitary sewer overflows (SSO) in separate systems. I/I accounts for approximately 34,000 gpd[7]. The permittee has an ongoing program of manhole rebuilding, sump pump removal, and camera inspection of the system. Approximately 30 percent of the population served by the collection system is in Groton. Additionally, 30 percent of the commercial contributors to the system are located in Groton. Groton owns a significant portion of the collection system connected to the Pepperell WWTP. As a co-permittee, Groton partners with Pepperell to insure proper maintenance of the collection system.

MassDEP has stated that inclusion of the I/I conditions in the NPDES permits is a standard State Certification requirement under Section 401 of the Clean Water Act and 40 CFR §124.55(b). Because Groton owns and operates a collection system that discharges to the Pepperell treatment works, it has been included as a co-permittee for the specific permit requirements discussed in the paragraph above. The historical background and legal framework underlying this co-permittee approach is set forth in **Attachment A** to this Fact Sheet, *EPA Region 1 NPDES Permitting Approach for Public Owned Treatment Works that Include Municipal Satellite Sewage Collection Systems.*

IX. Sludge Information and Requirements

Sludge generated at the Ayer WTTF is incinerated at the East Fitchburg WWTP. In 2009, 2,918,900 gallons of sludge was sent for incineration.

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 Standards for the Disposal of Sewage Sludge codified at 40 CFR § 503 (February 6, 1989-54 FR 5746). The pollutants listed are those which are to be limited by 40 CFR § 503.

X. Unauthorized Discharges

The permittee is only authorized to discharge wastewater from the wastewater treatment plant Outfall 001. Other discharges of wastewater, such as pump station emergency overflows or sanitary sewer overflows must be reported in accordance with reporting requirements found in Section D.1.e. of Part II of the permit (24-hour reporting), including requirements for both oral notice within 24 hours and written notice within 5 days.

[7] Source – Page 7, July 30, 2010 Permit Application

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

The Amendments broadly define "essential fish habitat" (EFH) as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity," 16 U.S.C. § 1802(10). "Adverse impact" means any impact which reduces the quality and/or quantity of EFH, 50 C.F.R. § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site specific or habitat-wide impacts, including individual, cumulative or synergistic consequences of actions. Id.

Essential fish habitat is only designated for fish 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.

EFH Species

Pepperell discharges to the Nashua 13 miles above the confluence with the Merrimack River. Atlantic salmon (*Salmo salar*) is the only species for which EFH has been designated in the Merrimack River. The Nashua River is a tributary of the Merrimack River in Massachusetts and New Hampshire. According to the New Hampshire Fish and Game Department (NHF&G), no salmon fry are stocked in the Nashua River. In addition, NHF&G has reported that Atlantic salmon are not stocked in the Merrimack River in the area influenced by the discharge from the WWTF. This species is stocked further upstream in the Merrimack River watershed. The stretch of the Merrimack River in the vicinity of the confluence with the Nashua River is used by salmon smolts in spring months for downstream passage to the sea. Adult Atlantic salmon returning to the river from the ocean do not travel upstream as far as the WWTF discharge area. They are collected at a dam in Lawrence, Massachusetts, primarily for use as broodstock.

EPA has determined that the draft permit has been conditioned in such a way so as to minimize any adverse impacts to EFH for the following reasons:

- This permit action is a reissuance of an existing NPDES permit;
- The WWTF has a dilution factor of 24.3 ;
- A TMDL for the Merrimack and Nashua Rivers for *E. coli* has been completed (2010) and the requirements in the draft permit are consistent with the TMDL;
- The draft permit prohibits the WWTF discharge from causing a violation of State water quality standards;
- The draft permit prohibits the discharge of pollutants or combinations of pollutants in toxic amounts;
- The permit requires toxicity testing two times per year to ensure that the discharge does not present toxicity problems.

EPA believes that the conditions and limitations contained within the proposed permit adequately protect all aquatic life, including those with designated EFH in the receiving water, and that further mitigation is not warranted. If adverse impacts to EFH are detected as a result of this permit action, or if new information is received that changes the basis for these conclusions, EPA will contact NMFS Habitat Division.

XII. Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973 (ESA), as amended, 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 have 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) administer Section 7 consultations for freshwater species. The National Marine Fisheries Service (NOAA Fisheries) administers Section 7 consultations for marine species and anadromous fish.

EPA and the MassDEP have determined that an ESA consultation is not required for this discharge, since no listed species or critical habitats are located in an area that could be affected by the facility's discharge.

XIII. Monitoring and Reporting

The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308 (a) of the CWA in accordance with 40 CFR §§122.41 (j), 122.44 (l), and 122.48.

The Draft Permit requires that the permittee submit all monitoring data and other reports required by the permit to EPA using NetDMR. NetDMR is a national web-based tool for regulated CWA permittees to submit DMRs electronically via a secure Internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 CFR § 122.41 and § 403.12. NetDMR is accessed from the following url: http://www.epa.gov/netdmr. Further information about NetDMR, including contacts for EPA Region 1, is provided on this website.

The Draft Permit requires the permittee to report monitoring results obtained during each calendar month using NetDMR, no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA as an electronic attachment to the DMR. Permittees must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP.

XIV. State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection with jurisdiction over the receiving water 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 State Water Quality Standards. The staff of MassDEP have reviewed the Draft Permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR 124.53 and expects that the Draft Permit will be certified.

XV. Public Comment Period and, Procedures for Final Decision

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 the United States Environmental Protection Agency, 5 Post Office Square-Suite 100, Mailcode OEP06-1, Boston, Massachusetts 02109-3912. Any person, prior to such date, 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 hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the Draft Permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

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.

XVI. EPA and 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:

Doug Corb
US Environmental Protection Agency
5 Post Office Square – Suite 100
Mailcode: OEP06-1
Boston, Massachusetts 02109-3912
Telephone: (617) 918-1565
corb.doug@epa.gov

or

Claire Golden
Massachusetts Department of Environmental Protection
Division of Watershed Management
205B Lowell Street
Wilmington, Massachusetts 01887
Telephone: (978) 694-3244
claire.golden@state.ma.us

Date: February 5, 2015

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

FACT SHEET ATTACHMENT A

EPA REGION 1 NPDES PERMITTING APPROACH FOR PUBLICLY OWNED TREATMENT WORKS THAT INCLUDE MUNICIPAL SATELLITE SEWAGE COLLECTION SYSTEMS

This interpretative statement provides an explanation to the public of EPA Region 1's interpretation of the Clean Water Act ("CWA" or "Act") and implementing regulations, and advises the public of relevant policy considerations, regarding the applicability of the National Pollutant Discharge Elimination System ("NPDES") program to publicly owned treatment works ("POTWs") that are composed of municipal satellite sewage collection systems owned by one entity and treatment plants owned by another ("regionally integrated POTWs"). When issuing NPDES permits to these types of sanitary sewer systems, it is EPA Region 1's practice to directly regulate, as necessary, the owners/operators of the municipal satellite collection systems through a co-permitting structure. This interpretative statement is intended to explain, generally, the basis for this practice. In determining whether to include municipal satellite collection systems as co-permittees in any particular circumstances, Region 1's decision will be made by applying the law and regulations to the specific facts of the case before the Region.

EPA has set out a national policy goal for the nation's sanitary sewer systems to adhere to strict design and operational standards:

> "Proper [operation and maintenance] of the nation's sewers is integral to ensuring that wastewater is collected, transported, and treated at POTWs; and to reducing the volume and frequency of …[sanitary sewer overflow] discharges. Municipal owners and operators of sewer systems and wastewater treatment facilities need to manage their assets effectively and implement new controls, where necessary, as this infrastructure continues to age. Innovative responses from all levels of government and consumers are needed to close the gap."[1]

Because ownership/operation of a regionally integrated POTW is sometimes divided among multiple parties, the owner/operator of the treatment plant many times lacks the means to implement comprehensive, system-wide operation and maintenance ("O & M") procedures. Failure to properly implement O & M measures in a POTW can cause, among other things, excessive extraneous flow (*i.e.*, inflow and infiltration) to enter, strain and occasionally overload treatment system capacity. This failure not only impedes EPA's national policy goal concerning preservation of the nation's wastewater infrastructure assets, but also frustrates achievement of the water quality- and technology-based requirements of CWA § 301 to the extent it results in sanitary sewer overflows and degraded treatment plant performance, with adverse impacts on human health and the environment.

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[1] *See Report to Congress: Impacts and Control of CSOs and SSOs* (EPA 833-R-04-001) (2004), at p. 10-2. *See also* "1989 National CSO Control Strategy," 54 Fed. Reg. 37371 (September 8, 1989).

In light of these policy objectives and legal requirements, it is Region 1's permitting practice to subject all portions of the POTW to NPDES requirements in order to ensure that the treatment system as a whole is properly operated and maintained and that human health and water quality impacts resulting from excessive extraneous flow are minimized. The approach of addressing O&M concerns in a regionally integrated treatment works by adding municipal satellite collection systems as co-permittees is consistent with the definition of "publicly owned treatment works," which by definition includes sewage collection systems. Under this approach, the POTW in its entirety will be subject to NPDES regulation as a point source discharger under the Act. Region 1's general practice will be to impose permitting requirements applicable to the POTW treatment plant along with a more limited set of conditions applicable to the connected municipal satellite collection systems.

The factual and legal basis for the Region's position is set forth in greater detail in the following pages titled Exhibit A, B, and C.

ANALYSIS SUPPORTING EPA REGION 1
NPDES PERMITTING APPROACH FOR PUBLICLY OWNED TREATMENT WORKS THAT INCLUDE MUNICIPAL SATELLITE SEWAGE COLLECTION SYSTEMS

Exhibit A	List of POTW permits that include municipal satellite collection systems as co-permittees
Exhibit B	Analysis of extraneous flow trends and SSO reporting for representative systems
Exhibit C	Form of Regional Administrator's waiver of permit application requirements for municipal satellite collection systems

Introduction

On May 28, 2010, the U.S. EPA Environmental Appeals Board ("Board") issued a decision remanding to the Region certain NPDES permit provisions that included and regulated satellite collection systems as co-permittees. *See In re Upper Blackstone Water Pollution Abatement District*, NPDES Appeal Nos. 08-11 to 08-18 & 09-06, 14 E.A.D. __ (*Order Denying Review in Part and Remanding in Part*, EAB, May 28, 2010).[2] While the Board "did not pass judgment" on the Region's position that its NPDES jurisdiction encompassed the entire POTW and not only the treatment plant, it held that "where the Region has abandoned its historical practice of limiting the permit only to the legal entity owning and operating the wastewater treatment plant, the Region had not sufficiently articulated in the record of this proceeding the statutory, regulatory, and factual bases for expanding the scope of NPDES authority beyond the treatment plant owner/operator to separately owned/operated collection systems that do not discharge directly to waters of the United States, but instead that discharge to the treatment plant." *Id., slip op.* at 2, 18. In the event the Region decided to include and regulate municipal satellite collection systems as co-permittees in a future permit, the Board posed several questions for the Region to address in the analysis supporting its decision:

> (1) In the case of a regionally integrated POTW composed of municipal satellite collection systems owned by different entities and a treatment plant owned by another, is the scope of NPDES authority limited to owners/operators of the POTW treatment plant, or does the authority extend to owners/operators of the municipal satellite collection systems that convey wastewater to the POTW treatment plant?
>
> (2) If the latter, how far up the collection system does NPDES jurisdiction reach, *i.e.*, where does the "collection system" end and the "user" begin?

[2] The decision is available on the Board's website via the following link: http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/30b93f139d3788908525706c005185b4/34e841c87f346d94852577360068976f!OpenDocument.

(3) Do municipal satellite collection systems "discharge [ ] a pollutant" within the meaning of the statute and regulations?

(4) Are municipal satellite collection systems "indirect dischargers" and thus excluded from NPDES permitting requirements?

(5) Is the Region's rationale for regulating municipal satellite collection systems as co-permittees consistent with the references to "municipality" in the regulatory definition of POTW, and the definition's statement that "[t]he term also means the municipality…which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works"?

(6) Is the Region's rationale consistent with the permit application and signatory requirements under NPDES regulations?

See *Blackstone, slip op.* at 18, 20, n. 17.

This regional interpretative statement is, in part, a response to the Board's decision. It details the legal and policy bases for regulating publicly owned treatment works ("POTWs") that include municipal satellite collection systems through a co-permittee structure. Region 1's analysis is divided into five sections. First, the Region provides context for the co-permitting approach by briefly describing the health and environmental impacts associated with poorly maintained sanitary sewer systems. Second, the Region outlines its evolving permitting practice regarding regionally integrated POTWs, particularly its attempts to ensure that such entity's municipal satellite collection systems are properly maintained and operated. Third, the Region explains the legal authority to include municipal satellite collection systems as co-permittees when permitting regionally integrated POTWs. In this section, the Region answers the questions posed by the Board in the order presented above. Fourth, the Region sets forth the basis for the specific conditions to which the municipal satellite collection systems will be subject as co-permittees. Finally, the Region discusses other considerations informing its decision to employ a co-permittee structure when permitting regionally integrated POTWs.

I. Background

A sanitary sewer system (SSS) is a wastewater collection system owned by a state or municipality that conveys domestic, industrial and commercial wastewater (and limited amounts of infiltrated groundwater and some storm water runoff) to a POTW.[3] *See* 40 C.F.R. § 35.2005(b)(37) (defining "sanitary sewer"). The purpose of these systems is to transport wastewater uninterrupted from its source to a treatment facility. Developed areas that are served by sanitary sewers often also have a separate storm sewer system (*e.g.*, storm drains) that collects and conveys runoff, street wash waters and drainage and discharges them directly to a receiving water (*i.e.*, without treatment at a POTW). While sanitary sewers are not designed to collect

[3] *See generally* Report to Congress: Impacts and Control of CSOs and SSOs (EPA 833-R-04-001) (2004), from which EPA Region 1 has drawn this background material.

large amounts of runoff from precipitation events or provide widespread drainage, they typically are built with some allowance for higher flows that occur during periods of high groundwater and storm events. They are thus able to handle minor and controllable amounts of extraneous flow (*i.e.*, inflow and infiltration, or I/I) that enter the system. Inflow generally refers to water other than wastewater—typically precipitation like rain or snowmelt—that enters a sewer system through a direct connection to the sewer. Infiltration generally refers to other water that enters a sewer system from the ground, for example through defects in the sewer.

Municipal sanitary sewer collection systems can consist of a widespread network of pipes and associated components (*e.g.*, pump stations). These systems provide wastewater collection service to the community in which they are located. In some situations, the municipality that owns the collector sewers may not provide treatment of wastewater, but only conveys its wastewater to a collection system that is owned and operated by a different municipal entity (such as a regional sewer district). This is known as a satellite community. A "satellite" community is a sewage collection system owner/operator that does not have ownership of the treatment facility and the wastewater outfall but rather the responsibility to collect and convey the community's wastewater to a POTW treatment plant for treatment. *See* 75 Fed. Reg. 30395, 30400 (June 1, 2010).

Municipal sanitary sewer collection systems play a critical role in protecting human health and the environment. Proper operation and maintenance of sanitary sewer collection systems is integral to ensuring that wastewater is collected, transported, and treated at POTW treatment plants. Through effective operation and maintenance, collection system operators can maintain the capacity of the collection system; reduce the occurrence of temporary problem situations such as blockages; protect the structural integrity and capacity of the system; anticipate potential problems and take preventive measures; and indirectly improve treatment plant performance by minimizing I/I-related hydraulic overloading.

Despite their critical role in the nation's infrastructure, many collection systems exhibit poor performance and are subjected to flows that exceed system capacity. Untreated or partially treated overflows from a sanitary sewer system are termed "sanitary sewer overflows" (SSOs). SSOs include releases from sanitary sewers that reach waters of the United States as well as those that back up into buildings and flow out of manholes into city streets.

There are many underlying reasons for the poor performance of collection systems. Much of the nation's sanitary sewer infrastructure is old, and aging infrastructure has deteriorated with time. Communities also sometimes fail to provide capacity to accommodate increased sewage delivery and treatment demand from increasing populations. Furthermore, institutional arrangements relating to the operation of sewers can pose barriers to coordinated action, because many municipal sanitary sewer collection systems are not entirely owned or operated by a single municipal entity.

The performance and efficiency of municipal sanitary sewer collection systems influence the performance of sewage treatment plants. When the structural integrity of a municipal sanitary sewer collection system deteriorates, large quantities of infiltration (including rainfall-induced infiltration) and inflow can enter the collection system, causing it to overflow. These extraneous

flows are among the most serious and widespread operational challenges confronting treatment works.[4]

Infiltration can be long-term seepage of water into a sewer system from the water table. In some systems, however, the flow characteristics of infiltration can resemble those of inflow, *i.e.*, there is a rapid increase in flow during and immediately after a rainfall event, due, for example, to rapidly rising groundwater. This phenomenon is sometimes referred to as rainfall-induced infiltration.

Sanitary sewer systems can also overflow during periods of normal dry weather flows. Many sewer system failures are attributable to natural aging processes or poor operation and maintenance. Examples include years of wear and tear on system equipment such as pumps, lift stations, check valves, and other moveable parts that can lead to mechanical or electrical failure; freeze/thaw cycles, groundwater flow, and subsurface seismic activity that can result in pipe movement, warping, brittleness, misalignment, and breakage; and deterioration of pipes and joints due to root intrusion or other blockages.

Inflow and infiltration impacts are often regional in nature. Satellite collection systems in the communities farthest from the POTW treatment plant can cause sanitary sewer overflows ("SSOs") in communities between them and the treatment plant by using up capacity in the interceptors. This can cause SSOs in the interceptors themselves or in the municipal sanitary sewers that lead to them. The implication of this is that corrective solutions often must also be regional in scope to be effective.

The health and environmental risks attributed to SSOs vary depending on a number of factors including location and season (potential for public exposure), frequency, volume, the amount and type of pollutants present in the discharge, and the uses, conditions, and characteristics of the receiving waters. The most immediate health risks associated with SSOs to waters and other areas with a potential for human contact are associated with exposure to bacteria, viruses, and other pathogens.

Human health impacts occur when people become ill due to contact with water or ingestion of water or shellfish that have been contaminated by SSO discharges. In addition, sanitary sewer systems can back up into buildings, including private residences. These discharges provide a direct pathway for human contact with untreated wastewater. Exposure to land-based SSOs typically occurs through the skin via direct contact. The resulting diseases are often similar to those associated with exposure through drinking water and swimming (*e.g.*, gastroenteritis), but may also include illness caused by inhaling microbial pathogens. In addition to pathogens, raw sewage may contain metals, synthetic chemicals, nutrients, pesticides, and oils, which also can be detrimental to the health of humans and wildlife.

II. Region 1 Past Practice of Permitting POTWs that Include

[4] In a 1989 Water Pollution Control Federation survey, 1,003 POTWs identified facility performance problems. Infiltration and inflow was the most frequently cited problem, with 85 percent of the facilities reporting I/I as a problem. I/I was cited as a major problem by 41 percent of the facilities (32 percent as a periodic problem).

Municipal Satellite Collection Systems

Region 1's practice in permitting regionally integrated POTWs has developed in tandem with its increasing focus on addressing I/I in sewer collection systems, in response to the concerns outlined above. Up to the early 1990s, POTW permits issued by Region 1 generally did not include specific requirements for collection systems. When I/I and the related issue of SSOs became a focus of concern both nationally and within the region in the mid-1990s, Region 1 began adding general requirements to POTW permits that required the permittees to "eliminate excessive infiltration and inflow" and provide an annual "summary report" of activities to reduce I/I. As the Region gathered more information and gained more experience in assessing these reports and activities, it began to include more detailed requirements and reporting provisions in these permits.

MassDEP also engaged in a parallel effort to address I/I, culminating in 2001 with the issuance of MassDEP Policy No. BRP01-1, "Interim Infiltration and Inflow Policy." Among other provisions, this policy established a set of standard NPDES permit conditions for POTWs that included development of an I/I control plan (including funding sources, identification and prioritization of problem areas, and public education programs) and detailed annual reporting requirements (including mapping, reporting of expenditures and I/I flow calculations). Since September 2001, these requirements have been the basis for the standard operation and maintenance conditions related to I/I.

Regional treatment plants presented special issues as I/I requirements became more specific, as it is generally the member communities, rather than the regional sewer district, that own the collection systems that are the primary source of I/I. Before the focus on I/I, POTW permits did not contain specific requirements related to the collection system component of POTWs. Therefore, when issuing NPDES permits to authorize discharges from regionally integrated treatment POTWs, Region 1 had generally only included the legal entity owning and/or operating the regionally centralized wastewater treatment plant as the permittee. As the permit conditions were focused on the treatment plant and its effluent discharge, a permit issued only to the owner or operator of the treatment plant was sufficient to ensure that permit conditions could be fully implemented and that EPA had authority to enforce the permit requirements.

In implementing the I/I conditions, Region 1 initially sought to maintain the same structure, placing the responsibility on the regional sewer district to require I/I activities by the contributing systems and to collect the necessary information from those systems for submittal to EPA. MassDEP's 2001 Interim I/I Policy reflected this approach, containing a condition for regional systems:

> ((FOR REGIONAL FACILITIES ONLY)) The permittee shall require, through appropriate agreements, that all member communities develop and implement infiltration and inflow control plans sufficient to ensure that high flows do not cause or contribute to a violation of the permittee's effluent limitations, or cause overflows from the permittee's collection system.

As existing NPDES permittees, the POTW treatment plants were an obvious locus of regulation. The Region assumed the plants would be in a position to leverage preexisting legal and/or contractual relationships with the satellite collection systems they serve to perform a coordinating function, and that utilizing this existing structure would be more efficient than establishing a new system of direct reporting to EPA by the collection system owners. The Region also believed that the owner/operator of the POTW treatment plant would have an incentive to reduce flow from contributing satellite systems because doing so would improve treatment plant performance and reduce operation costs. While relying on this cooperative approach, however, Region 1 also asserted that it had the authority to require that POTW collection systems be included as NPDES permittees and that it would do so if it proved necessary. Indeed, in 2001 Region 1 acceded to Massachusetts Water Resources Authority's ("MWRA") request to include as co-permittees the contributing systems to the MWRA Clinton wastewater treatment plant ("WWTP") based on evidence provided by MWRA that its relationship with those communities would not permit it to run an effective I/I reduction program for these collection systems. Region 1 also put municipal satellite collection systems on notice that they would be directly regulated through legally enforceable permit requirements if I/I reductions were not pursued or achieved.

In time, the Region realized that its failure to assert direct jurisdiction over municipal satellite dischargers was becoming untenable in the face of mounting evidence that cooperative (or in some cases non-existent) efforts on the part of the POTW treatment plant and associated satellites were failing to comprehensively address the problem of extraneous flow entering the POTW. The ability and/or willingness of regional sewer districts to attain meaningful I/I efforts in their member communities varied widely. The indirect structure of the requirements also tended to make it difficult for EPA to enforce the implementation of meaningful I/I reduction programs.

It became evident to Region 1 that a POTW's ability to comply with CWA requirements depended on successful operation and maintenance of not only the treatment plant but also the collection system. For example, the absence of effective I/I reduction and operation/maintenance programs was impeding the Region's ability to prevent or mitigate the human health and water quality impacts associated with SSOs. Additionally, these excess flows stressed POTW treatment plants from a hydraulic capacity and performance standpoint, adversely impacting effluent quality. *See Exhibit B* (Analysis of extraneous flow trends and SSO reporting for representative systems). Addressing these issues in regional systems was essential, as these include most of the largest systems in terms of flow, population served and area covered.

The Region's practice of imposing NPDES permit conditions on the municipal collection systems in addition to the treatment plant owner/operator represents a necessary and logical progression in its continuing effort to effectively address the serious problem of I/I in sewer collection systems.[5] In light of its past permitting experience and the need to effectively address

[5] Although the Region has in the past issued NPDES permits only to the legal entities owning and operating the wastewater treatment plant (*i.e.*, only a portion of the "treatment works"), the Region's reframing of permits to include municipal satellite collection systems does not represent a break or reversal from its historical legal position. Region 1 has never taken the legal position that the satellite collection systems are beyond the reach of the CWA and the NPDES permitting program. Rather, the Region as a matter of discretion had merely never determined it

the problem of extraneous flow on a system-wide basis, Region 1 decided that it was necessary to refashion permits issued to regionally integrated POTWs to include all owners/operators of the treatment works (*i.e.*, the regional centralized POTW treatment plant and the municipal satellite collection systems).[6] Specifically, Region 1 determined that the satellite systems should be subject as co-permittees to a limited set of O&M-related conditions on permits issued for discharges from regionally integrated treatment works. These conditions pertain only to the portions of the POTW collection system that the satellites own. This ensures maintenance and pollution control programs are implemented with respect to all portions of the POTW. Accordingly, since 2005, Region 1 has generally included municipal satellite collection systems as co-permittees for limited purposes while it required the owner/operator of the treatment plant, as the primary permittee, to comply with the full array of NPDES requirements, including secondary treatment and water-quality based effluent limitations. The Region has identified 25 permits issued by the Region to POTWs in New Hampshire and Massachusetts that include municipal satellite collection systems as co-permittees. *See Exhibit A*. The 25 permits include a total of 55 satellite collection systems as co-permittees.

III. Legal Authority

The Region's prior and now superseded practice of limiting the permit only to the legal entity owning and/or operating the wastewater treatment plant had never been announced as a regional policy or interpretation. Similarly, the Region's practice of imposing NPDES permit conditions on the municipal collection systems in addition to the treatment plant owner/operator has also never been expressly announced as a uniform, region-wide policy or interpretation. Upon consideration of the Board's decision, described above, Region 1 has decided to supply a clearer, more detailed explanation regarding its use of a co-permittee structure when issuing NPDES permits to regionally integrated POTWs. In this section, the Region addresses the questions posed by the Board in the *Upper Blackstone* decision referenced above.

(1) In the case of a regionally integrated POTW composed of municipal satellite collection systems owned by different entities and a treatment plant owned by another, is the scope of

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necessary to exercise its statutory authority to directly reach these facilities in order to carry out its NPDES permitting obligations under the Act.

Although the Region adopted a co-permittee structure to deal I/I problems in the municipal satellite collection systems, that decision does nothing to foreclose a permitting authority from opting for alternative permitting approaches that are consistent with applicable law. Each permitting authority has the discretion to determine which permitting approach best achieves the requirements of the Act based on the facts and circumstances before it. Upon determining that direct regulation of a satellite collection system via an NPDES permit is warranted, a permitting authority has the discretion to make the owner or operator of the collection system a co-permittee, or to cover it through an individual or general permit. Nothing in EPA regulations precludes the issuance of a separate permit to an entity that is part of the larger system being regulated. As in the pretreatment program, there are many ways to ensure that upstream collection systems are adequately contributing to the successful implementation of a POTW's permit requirements.

[6] EPA has "considerable flexibility in framing the permit to achieve a desired reduction in pollutant discharges." *Natural Resources Defense Council, Inc. v. Costle*, 568 F.2d 1369, 1380 (D.C.Cir.1977). ("[T]his ambitious statute is not hospitable to the concept that the appropriate response to a difficult pollution problem is not to try at all.").

NPDES authority limited to owners/operators of the POTW treatment plant, or does the authority extend to owners/operators of the municipal satellite collection systems that convey wastewater to the POTW treatment plant?

The scope of NPDES authority extends beyond the owners/operators of the POTW treatment plant to include the owners/operators of the municipal satellite collection systems conveying wastewater to the treatment plant for the reasons discussed below.

The CWA prohibits the "discharge of any pollutant by any person" from any point source to waters of the United States, except, *inter alia*, in compliance with an NPDES permit issued by EPA or an authorized state pursuant to Section 402 of the CWA. CWA § 301, 402(a)(1); 40 C.F.R. § 122.1(b).

"Publicly owned treatment works" are facilities that, when they discharge, are subject to the NPDES program. Statutorily, POTWs as a class must meet performance-based effluent limitations based on available wastewater treatment technology. *See* CWA § 402(a)(1) ("[t]he Administrator may…issue a permit for the discharge of any pollutant….upon condition that such discharge will meet (A) all applicable requirements under [section 301]…"); § 301(b)(1)(B) ("In order to carry out the objective of this chapter there shall be achieved…for publicly owned treatment works in existence on July 1, 1977...effluent limitations based upon secondary treatment[.]"); *see also* 40 C.F.R. pt 133. In addition to secondary treatment requirements, POTWs are also subject to water quality-based effluent limits if necessary to achieve applicable state water quality standards. *See* CWA § 301(b)(1)(C). *See also* 40 C.F.R. § 122.44(a)(1) ("…each NPDES permit shall include…[t]echnology-based effluent limitations based on: effluent limitations and standards published under section 301 of the Act") and (d)(1) (same for water quality standards and state requirements). NPDES regulations similarly identify the "POTW" as the entity subject to regulation. *See* 40 C.F.R. § 122.21(a) (requiring "new and existing POTWs" to submit information required in 122.21(j)," which in turn requires "all POTWs," among others, to provide permit application information).

The CWA and its implementing regulations broadly define "POTW" to include not only wastewater treatment plants but also the sewer systems and associated equipment that collect wastewater and convey it to the treatment plants. When a municipal satellite collection system conveys wastewater to the POTW treatment plant, the scope of NPDES authority extends to both the owner/operators of the treatment facility and the municipal satellite collection system, because the POTW is discharging pollutants.

Under section 212 of the Act,

> "(2)(A) The term 'treatment works' means any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature to implement section 1281 of this title, or necessary to recycle or reuse water at the most economical cost over the estimated life of the works, including intercepting sewers, outfall sewers, *sewage collection systems* [emphasis added], pumping, power, and other equipment, and their appurtenances; extensions, improvements, remodeling, additions, and alterations thereof; elements essential to provide a reliable recycled supply such as

> standby treatment units and clear well facilities; and any works, including site acquisition of the land that will be an integral part of the treatment process (including land used for the storage of treated wastewater in land treatment systems prior to land application) or is used for ultimate disposal of residues resulting from such treatment.
>
> (B) In addition to the definition contained in subparagraph (A) of this paragraph, 'treatment works' means any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste, including storm water runoff, or industrial waste, including waste in combined storm water and *sanitary sewer systems* [emphasis added]. Any application for construction grants which includes wholly or in part such methods or systems shall, in accordance with guidelines published by the Administrator pursuant to subparagraph (C) of this paragraph, contain adequate data and analysis demonstrating such proposal to be, over the life of such works, the most cost efficient alternative to comply with sections 1311 or 1312 of this title, or the requirements of section 1281 of this title."

EPA has defined POTW as follows:

> "The term *Publicly Owned Treatment Works* or *POTW* [emphasis in original]…includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in section 502(4) of the Act, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works."

See 40 C.F.R. §§ 403.3(q) and 122.2.

Thus, under the CWA and its implementing regulations, wastewater treatment plants and the sewer systems and associated equipment that collect wastewater and convey it to the treatment plants fall within the broad definition of "POTW."

The statutory and regulatory definitions plainly encompass both the POTW treatment plant and municipal satellite collection systems conveying wastewater to the POTW treatment plant even if the treatment plant and the satellite collection system have different owners. Municipal satellite collection systems indisputably fall within the definition of a POTW. First, they are "sewage collection systems" under section 212(A) and "sanitary sewer systems" under section 212(B). Second, they convey wastewater to a POTW treatment plant for treatment under 40 C.F.R. § 403.3(q)). The preamble to the rule establishing the regulatory definition of POTW supports the reading that the treatment plant comprises only one portion of the POTW. *See* 44 Fed. Reg. 62260, 62261 (Oct. 29, 1979).[7] Consistent with Region 1's interpretation, courts have similarly

[7] "A new provision…defining the term 'POTW Treatment Plant' has been added to avoid an ambiguity that now exists whenever a reference is made to a POTW (publicly owned treatment works). …[T]he existing regulation defines a POTW to include both the treatment plant and the sewer pipes and other conveyances leading to it. As a result, it is unclear whether a particular reference is to the pipes, the treatment plant, or both. The term "POTW

taken a broad reading of the terms treatment works and POTW.[8] Finally, EPA has long recognized that a POTW can be composed of different parts, and that sometimes direct control is required under a permit for all parts of the POTW system, not just the POTW treatment plant segment. *See Multijurisdictional Pretreatment Programs Guidance Manual,* Office off Water (4203) EPA 833-B-94-005 (June 1994) at 19. ("If the contributing jurisdiction owns or operates the collection system within its boundaries, then it is a co-owner or operator of the POTW. As such, it can be included on the POTW's NPDES permit and be required to develop a pretreatment program. Contributing jurisdictions should be made co-permittees where circumstances or experience indicate that it is necessary to ensure adequate pretreatment program implementation."). The Region's interpretation articulated here is consistent with the precepts of the pretreatment program, which pertains to the same regulated entity, i.e., the POTW.[9]

Thus, under the statutory and regulatory definitions, a satellite collection system owned by one municipality that transports municipal sewage to another portion of the POTW owned by another municipality can be classified as part of a single integrated POTW system discharging to waters of the U.S.

(2) If the latter, how far up the collection system does NPDES jurisdiction reach, i.e., where does the "collection system" end and the "user" begin?

NPDES jurisdiction extends beyond the treatment plant to the outer boundary of the municipally-owned sewage collection systems, that is, to the outer bound of those sewers whose purpose is to transport wastewater for others to a POTW treatment plant for treatment, as explained below.

As discussed in response to Question 1 above, the term "treatment works" is defined to include "sewage collection systems." CWA § 212. In order to identify the extent of the sewage collection system for purposes of co-permittee regulation—*i.e.*, to identify the boundary between the portions of the collection system that are subject to NPDES requirements and those that are not—Region 1 is relying on EPA's regulatory interpretation of the term "sewage collection system." In relevant part, EPA regulations define "sewage collection system" at 40 C.F.R. § 35.905 as:

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treatment plant" will be used to designate that portion of the municipal system which is actually designed to provide treatment to the wastes received by the municipal system."

[8] *See, e.g., United States v. Borowski, 977 F.2d 27, 30 n.5* (1st Cir. 1992) ("We read this language [POTW definition] to refer to such sewers, pipes and other conveyances that are publicly owned. Here, for example, the City of Burlington's sewer is included in the definition because it conveys waste water to the Massachusetts Water Resource Authority's treatment works."); *Shanty Town Assoc. v. Envtl. Prot. Agency, 843 F.2d 782, 785* (4th Cir. 1988) ("As defined in the statute, a 'treatment work' need not be a building or facility, but can be any device, system, or other method for treating, recycling, reclaiming, preventing, or reducing liquid municipal sewage and industrial waste, including storm water runoff.") (citation omitted); *Comm. for Consideration Jones Fall Sewage System v. Train,* 375 F. Supp. 1148, 1150-51 (D. Md. 1974) (holding that NPDES wastewater discharge permit coverage for a wastewater treatment plant also encompasses the associated sanitary sewer system and pump stations under § 1292 definition of "treatment work").

[9] The fact that EPA has endorsed a co-permittee approach in addressing pretreatment issues in situations where the downstream treatment plant was unable to adequately regulate industrial users to the collection system in another jurisdiction reinforces the approach taken here.

> "..... each, and all, of the common lateral sewers, within a publicly owned treatment system, which are primarily installed to receive waste waters directly from facilities which convey waste water from individual structures or from private property and which include service connection "Y" fittings designed for connection with those facilities. The facilities which convey waste water from individual structures, from private property to the public lateral sewer, or its equivalent, are specifically excluded from the definition…."

Put otherwise, a municipal satellite collection system is subject to NPDES jurisdiction under the Region's approach insofar as it transports wastewater for others to a POTW treatment plant for treatment. This test (i.e., common sewer installed to receive and carry waste water from others) allows Region 1 to draw a principled, predictable and readily ascertainable boundary between the POTW's collection system and the users. This test would exclude, for example, single user branch drainpipes that collect and transport wastewater from plumbing fixtures in a commercial building or public school to the common lateral sewer, just as service connections from private residential structures to lateral sewers are excluded. This type of infrastructure would not be considered part of the collection system, because it is not designed to receive and carry wastewaters from other users. Rather, it is designed to transport its users' wastewater to such a common collection system at a point further down the sanitary sewer system.

EPA's reliance on the definition of "sewage collection system" from the construction grants regulations for interpretative guidance is reasonable because these regulations at 40 C.F.R. Part 35, subpart E pertain to grants specifically for POTWs, the entity that is the subject of this NPDES policy. Additionally, the term "sewage collection systems" expressly appears in the definition of treatment works under section 212 of the Act as noted above.

(3) Do municipal satellite collection systems "discharge [] a pollutant" within the meaning of the statute and regulations?

Yes, the collection system "discharges a pollutant" because it adds pollutants to waters of the U.S. from a point source. This position is consistent with the definition of "discharge of a pollutant" at 40 C.F.R. § 122.[10] The fact that a collection system may be located in the upper reaches of the POTW and not necessarily near the ultimate discharge point at the treatment plant, or that its contribution may be commingled with other wastewater flows prior to the discharge point, is not material to the question of whether it "discharges" a pollutant and consequently may be subject to conditions of an NPDES permit issued for discharges from the POTW.[11]
40 C.F.R. § 122.2 defines "discharge of a pollutant" as follows:

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[10] This position differs from that taken by the Region in the *Upper Blackstone* litigation. There, the Region stated that the treatment plant was the discharging entity for regulatory purposes. The Region has clarified this view upon further consideration of the statute, EPA's own regulations and case law and determined that a municipal satellite collection system in a POTW is a discharging entity for regulatory purposes.

[11] As explained more fully below, non-domestic contributors of pollutants to the collection system and treatment plant do not require NPDES permits because they are regulated through the pretreatment program under Section 307 of the CWA and are specifically excluded from needing an NPDES permit. 40 C.F.R. § 122.3(c).

"Discharge of a pollutant means:

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

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

POTW treatment plants as well as the municipal satellite collection systems that comprise portions of the larger POTW and that transport flow to the POTW treatment plant clearly add pollutants or combinations of pollutants to waters of the U.S. and to waters of the "contiguous zone" and are thus captured under sections (a) and (b) of this definition.[12]

(4) Are municipal satellite collection systems "indirect dischargers" and thus excluded from NPDES permitting requirements?

No, municipal satellite collection systems that convey wastewater from domestic sources to another portion of the POTW for treatment are not "indirect dischargers" to the POTW.

Section 307(b) of the Act requires EPA to establish regulatory pretreatment requirements to prevent the "introduction of pollutants into treatment works" that interfere, pass through or are otherwise incompatible with such works. Section 307 is implemented through the General Pretreatment Regulations for Existing and New Sources of Pollution (40 C.F.R. Part 403) and categorical pretreatment standards (40 C.F.R. Parts 405-471). Section 403.3(i) defines "indirect discharger" as "any non-domestic" source that introduces pollutants into a POTW and is regulated under pretreatment standards pursuant to CWA § 307(b)-(d). The source of an indirect discharge is termed an "industrial user." *Id*. at § 403.3(j). Under regulations governing the

[12] Some municipal satellite collection systems have argued that the addition of pollutants to waters of the United States from pipes, sewers or other conveyances that go to a *treatment plant* are not a "discharge of a pollutant" under 40 C.F.R. § 122.2. This is erroneous. Only one category of such discharges is excluded: indirect discharges. For the reasons explained below in section 4, the satellite system discharges at issue here are not indirect discharges. It is correct that the discharge of wastewater that does not go to the treatment works is included as a discharge under the definition. However, interpreting the *inclusion* of such discharges under the definition as categorically *excluding* the conveyance of other discharges that do go to the treatment works is not a reasonable reading of the regulation. This argument is also flawed in that it incorrectly equates "treatment works," the term used in the definition above, with "treatment plant." To interpret "treatment works" as it appears in the regulatory definition of "discharge of a pollutant" as consisting of only the POTW treatment plant would be inconsistent with the definition of "treatment works" at 40 C.F.R. § 403.3(q), which expressly includes the collection system. *See also* § 403.3(r) (defining "POTW Treatment Plant" as "*that portion* [emphasis added] of the POTW which is designed to provide treatment (including recycling and reclamation) of municipal sewage and industrial waste.")

NPDES permitting program, the term "indirect discharger" is defined as "a non-domestic discharger introducing 'pollutants' to a 'publicly owned treatment works.'" 40 C.F.R. § 122.2. Indirect dischargers are excluded from NPDES permit requirements at 40 C.F.R. § 122.3(c), which provides, "The following discharges do not require an NPDES permit: . . . The introduction of sewage, industrial wastes or other pollutants into publicly owned treatment works by indirect dischargers."

Municipal satellite collection satellite systems are not indirect dischargers as that term is defined under part 122 or 403 regulations. Unlike indirect dischargers, municipal satellite collection systems are not a non-domestic discharger "introducing pollutants" to POTWs as defined in 40 C.F.R. § 122.2. Instead, they themselves fall within the definition of POTW, whose components consist of the municipal satellite collection system owned and operated by one POTW and a treatment system owned and operated by another POTW. Additionally, they are not a non-domestic *source* regulated under section 307(b) that introduces pollutants into a POTW within the meaning of § 403.3(i). Rather, they are part of the POTW and collect and convey municipal sewage from industrial, commercial and domestic users of the POTW.

The Region's determination that municipal satellite collection systems are not indirect dischargers is, additionally, consistent with the regulatory history of the term indirect discharger. The 1979 revision of the part 122 regulations defined "indirect discharger" as "a non-municipal, non-domestic discharger introducing pollutants to a publicly owned treatment works, which introduction does not constitute a 'discharge of pollutants'…" *See* National Pollutant Discharge Elimination System, 44 Fed. Reg. 32854, 32901 (June 7, 1979). The term "non-municipal" was removed in the Consolidated Permit Regulations, 45 Fed. Reg. 33290, 33421 (May 19, 1980) (defining "indirect discharger" as "a nondomestic discharger…"). Although the change was not explained in detail, the substantive intent behind this provision remained the same. EPA characterized the revision as "minor wording changes." 45 Fed. Reg. at 33346 (Table VII: "Relationship of June 7[, 1979] Part 122 to Today's Regulations"). The central point again is that under any past or present regulatory incarnation, municipal satellite collection systems, as POTWs, are not within the definition of "indirect discharger," which is limited to non-domestic sources subject to section 307(b) that introduce pollutants to POTWs.

(5) How is the Region's rationale consistent with the references to "municipality" in the regulatory definition of POTW found at 40 C.F.R. § 403.3(q), and the definition's statement that "[t]he term also means the municipality….which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works?"

There is no inconsistency between the Region's view that municipally-owned satellite collection systems fall within the definition of POTW, and the references to municipality in 40 C.F.R. § 403.3(q), including the final sentence of the regulatory definition of POTW in the pretreatment regulations.

The Region's co-permitting rationale is consistent with the first part of the pretreatment program's regulatory definition of POTW, because the Region is only asserting NPDES jurisdiction over satellite collection systems that are owned by a "State or municipality (as defined by section 502(4) of the Act)." The term "municipality" as defined in CWA § 502(4)

"means a city, town, borough, county, parish, district, association, or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes…" Thus, in order to qualify under this definition, a wastewater collection system need only be "owned by a State or municipality." There is no requirement that the constituent components of a regionally integrated POTW, *i.e.*, the collection system and regional centralized POTW treatment plant, be owned by the same State or municipal entity.

Furthermore, there is no inconsistency between the Region's view that a satellite collection system is part of a POTW, and the final sentence of the regulatory definition of POTW in the pretreatment regulations. As noted above, the sentence provides that "POTW" may "also" mean a municipality which has jurisdiction over indirect discharges to and discharges from the treatment works. This is not a limitation because of the use of the word "also" (contrast this with the "only if" language in the preceding sentence of the regulatory definition).

(6) How does the Region's rationale comport with the permit application and signatory requirements under NPDES regulations?

"Any person who discharges or proposes to discharge pollutants"… must comply with permit application requirements set forth in 40 C.F.R. § 122.21 ("Application for a Permit"), including the duty to apply in subsection 122.21(a). It is the operator's duty to obtain a permit. *See* 40 C.F.R. § 122.21(b). An operator of a sewage collection system in a regionally integrated treatment works is operating a portion of the POTW and thus can be asked to submit a separate permit application pursuant to § 122.21(a) (requiring applicants for "new and existing POTWs" to submit information required in 122.21(j)," which in turn requires "all POTWs," among others, to provide permit application information). In the Region's experience, however, sufficient information about the collection system can be obtained from the treatment plant operator's permit application. The NPDES permit application for POTWs solicits information concerning portions of the POTW beyond the treatment plant itself, including the collection system used by the treatment works. *See* 40 C.F.R. § 122.21(j)(1). Where this information is not sufficient for writing permit conditions that apply to a separately owned municipal satellite system, EPA can request that the satellite system to submit an application with the information required in 122.21(j), or alternatively use its authority under CWA section 308 to solicit the necessary information. Because Region 1 believes that it will typically receive information sufficient for NPDES permitting purposes from the POTW treatment plant operator's application, the Region will formalize its historical practice by issuing written waivers to exempt municipal satellite collection systems from permit application and signatory requirements in accordance with 40 C.F.R. § 122.21(j).[13] To the extent the Region requires additional information, it intends to use its information collection authority under CWA § 308.

IV. Basis for the Specific Conditions to which the Municipal Satellite Collection Systems are Subject as Co-permittees

[13] EPA may waive applications for municipal satellite collection systems, when requiring such applications may result in duplicative or immaterial information. The Regional Administrator ("RA") may waive any requirement of this paragraph if he or she has access to substantially identical information. 40 C.F.R. § 122.21(j). *See generally*, 64 Fed. Reg. 42440 (August 4, 1999). The RA may also waive any application requirement that is not of material concern for a specific permit. *Id.*

Section 402(a) of the CWA is the legal authority for extending NPDES conditions to all portions of the municipally-owned treatment works to ensure proper operation and maintenance and to reduce the quantity of extraneous flow into the POTW. This section of the Act authorizes EPA to issue a permit for the "discharge of pollutants" and to prescribe permit conditions as necessary to carry out the provisions of the CWA, including Section 301 of the Act. Among other things, Section 301 requires POTWs to meet performance-based requirements based on secondary treatment technology, as well as any more stringent requirements of State law or regulation, including water quality standards. *See* CWA § 301(b)(1)(B),(C).

The Region imposes requirements on co-permittees when it determines that they are necessary to assure continued achievement of effluent limits based on secondary treatment requirements and state water quality standards in accordance with sections 301 and 402 of the Act, and to prevent unauthorized discharges of sewage from downstream collection systems. With respect to achieving effluent limits, the inclusion of the satellite systems as co-permittees may be necessary when high levels of I/I dilute the strength of influent wastewater and increase the hydraulic load on treatment plants, which can reduce treatment efficiency (*e.g.*, result in violations of technology-based percent removal limitations for BOD and TSS due to less concentrated influent, or violation of other technology-based or water quality-based effluent limitations due to reduction in treatment efficiency). Excess flows from an upstream collection system can also lead to bypassing a portion of the treatment process, or in extreme situations make biological treatment facilities inoperable (*e.g.*, wash out the biological organisms that treat the waste).

By preventing excess flows, the co-permittee requirements will also reduce water quality standards violations that result from SSOs by lessening their frequency and extent. *See Exhibit B* (Analysis of extraneous flow trends and SSO reporting for representative systems). SSOs that reach waters of the U.S. are discharges in violation of section 301(a) of the CWA to the extent not authorized by an NPDES permit.

Imposing standard permit conditions on the satellite communities may be necessary to give full effect to some of the standard permit conditions applicable to all NPDES permits at 40 C.F.R. § 122.41 . To illustrate, NPDES permitting regulations require standard conditions that "apply to all NPDES permits," pursuant to 40 C.F.R. § 122.41, including a duty to mitigate and to properly operate and maintain "all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit." *Id.* at § 122.41(d), (e). If the owner or operator of a downstream POTW treatment plant is unable, due to legal constraints for example, or unwilling to ensure that upstream collection systems are implementing requirements concerning the collection system, such as I/I requirements, making the upstream POTW collection system subject to its own permit requirements may be the only or best available option to give full effect to these permit obligations.

V. Conclusion

For all the reasons above, Region 1 has determined that it is reasonable to, as necessary, directly regulate municipal satellite collection systems as co-permittees when issuing NPDES permits for discharges from regionally integrated treatment works.

Exhibit A

Name	Issue Date
Massachusetts Water Resources Authority – Clinton (NPDES Permit No. MA0100404)	September 27, 2000
City of Brockton (NPDES Permit No. MA0101010)	May 11, 2005
City of Marlborough (NPDES Permit No. MA0100480)	May 26, 2005
Westborough Wastewater Treatment Plant (NPDES Permit No. MA0100412)	May 20, 2005
Lowell Regional Wastewater Utilities (NPDES Permit No. MA0100633)	September 1, 2005
Town of Webster Sewer Department (NPDES Permit No. MA0100439)	March 24, 2006
Town of South Hadley, Board of Selectmen (NPDES Permit No. MA0100455)	June 12, 2006
City of Leominster (NPDES Permit No. MA0100617)	September 28, 2006
Hoosac Water Quality District (NPDES Permit No. MA0100510)	September 28, 2006
Board of Public Works, North Attleborough (NPDES Permit No. MA0101036)	January 4, 2007
Town of Sunapee (NPDES Permit No. 0100544)	February 21, 2007
Lynn Water and Sewer Commission (NPDES Permit No. MA0100552)	March 3, 2007
City of Concord (NPDES Permit No. NH0100331)	June 29, 2007
City of Keene (NPDES Permit No. NH0100790)	August 24, 2007
Town of Hampton (NPDES No. NH0100625)	August 28, 2007
Town of Merrimack, NH (NPDES No. NH0100161)	September 25, 2007
City of Haverhill (NPDES Permit No. MA0101621)	December 5, 2007
Greater Lawrence Sanitary District (NPDES Permit No. MA0100447)	August 11, 2005
City of Pittsfield, Department of Public Works (NPDES No. MA0101681)	August 22, 2008

City of Manchester (NPDES No. NH0100447)	September 25, 2008
City of New Bedford (NPDES Permit No. MA0100781)	September 28, 2008
Winnipesaukee River Basin Program Wastewater Treatment Plant (NPDES Permit No. NH0100960)	June 19, 2009
City of Westfield (NPDES Permit No. MA0101800)	September 30, 2009
Hull Permanent Sewer Commission (NPDES Permit No. MA0101231)	September 1, 2009
Gardner Department of Public Works (NPDES Permit No. MA0100994)	September 30, 2009

Exhibit B

Analysis of extraneous flow trends and SSO reporting for representative systems

I. Representative POTWS

The **South Essex Sewer District (SESD)** is a regional POTW with a treatment plant in Salem, Massachusetts. The SESD serves a total population of 174,931 in six communities: Beverly, Danvers, Marblehead, Middleton, Peabody and Salem. The **Charles River Pollution Control District (CRPCD)** is a regional POTW with a treatment plant in Medway, Massachusetts. The CRPCD serves a total population of approximately 28,000 in four communities: Bellingham, Franklin, Medway and Millis. The CRPCD has been operating since 2001 under a permit that places requirements on the treatment plant to implement I/I reduction programs with the satellite collection systems, while SESD's existing permit does not include specific I/I requirements related to the satellite collection systems, in contrast to Region 1's current practice of including the satellite collection systems as co-permittees.

II. Comparison of flows to standards for nonexcessive infiltration and I/I

Flow data from the facilities' discharge monitoring reports (DMRs) are shown in comparison to the EPA standard for nonexcessive infiltration/inflow (I/I) of 275 gpcd wet weather flow and the EPA standard for nonexcessive infiltration of 120 gallons per capita per day (gpcd) dry weather flow; the standards are multiplied by population served for comparison with total flow from the facility. See *I/I Analysis and Project Certification*, EPA Ecol. Pub. 97-03 (1985); 40 CFR 35.2005(b)(28) and (29).

Figures 1 and 2 show the daily maximum flows (the highest flow recorded in a particular month) for the CRPCD and SESD, respectively, along with monthly precipitation data from nearby weather stations. Both facilities experience wet weather flows far exceeding the standard for nonexcessive I/I, particularly in wet months, indicating that these facilities are receiving high levels of inflow and wet weather infiltration.

Figure 1. CRPCD Daily Maximum Flow Compared to Nonexcessive I/I Standard

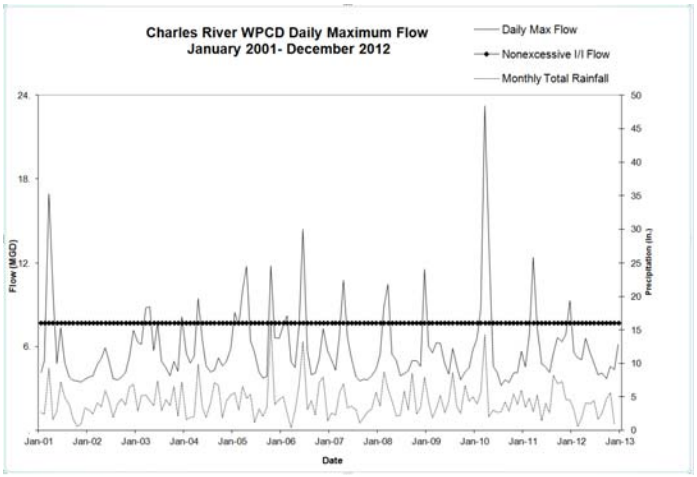
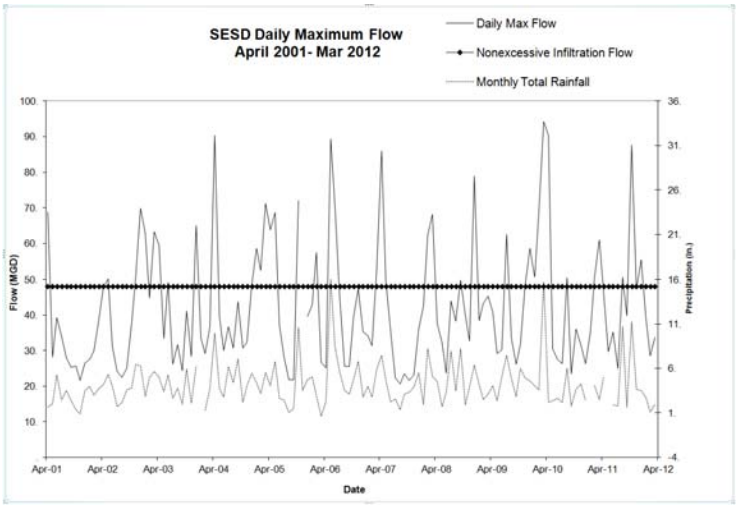


Figure 2. SESD Daily Maximum Flow Compared to Nonexcessive I/I Standard



Figures 3 and 4 shows the average flows for the CRPCD and SESD, which exceed the nonexcessive infiltration standard for all but the driest months. This indicates that these systems experience high levels of groundwater infiltration into the system even during dry weather.

Figure 3. CRPCD 12 Month Average Flow Compared to Nonexcessive Infiltration Standard

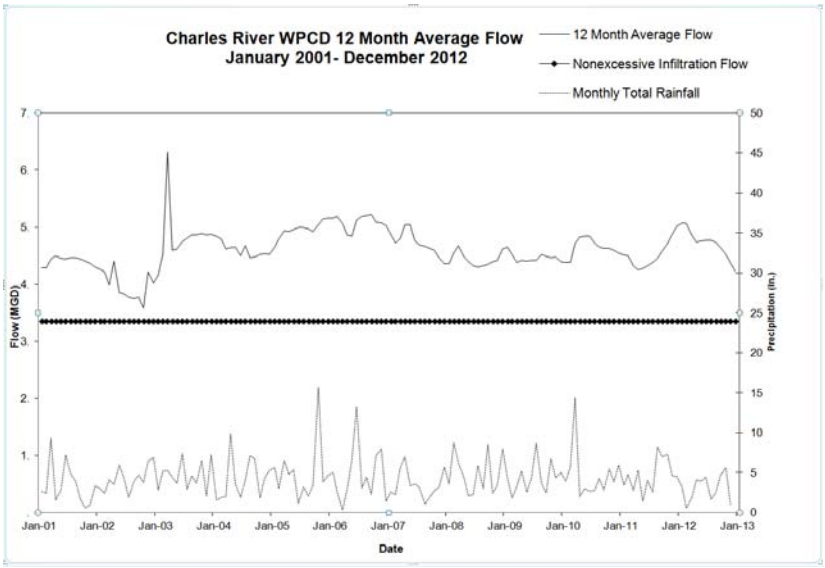
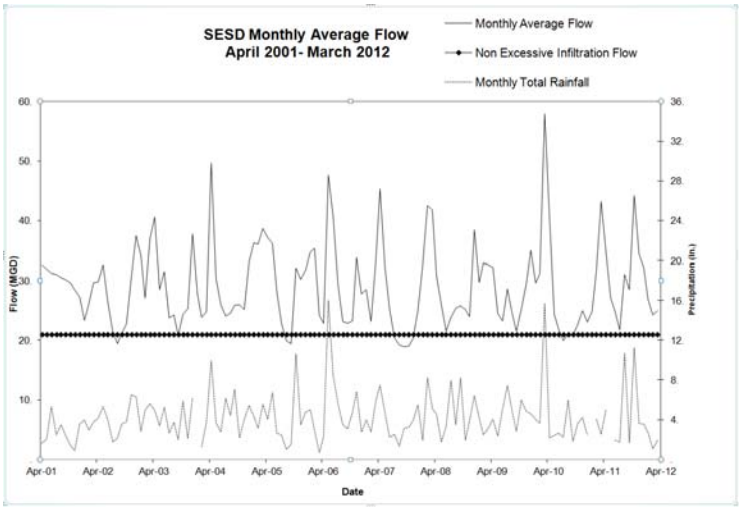


Figure 4. SESD Monthly Average Flow Compared to Nonexcessive Infiltration Standard

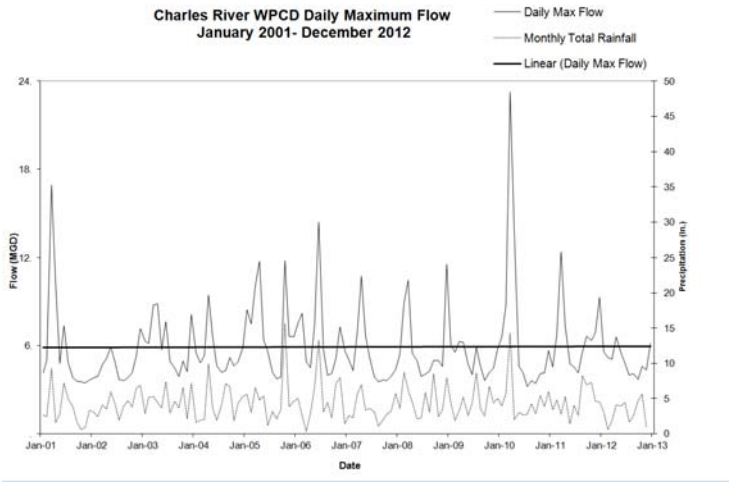


II. Flow Trends

Successful I/I reduction programs should result in decreases in wet weather flows to the treatment plant over the long term. Figures 5 and 6 show the trend in maximum daily flows since 2001. The maximum daily flow reflects the highest wet weather flow for each month. Charts are shown for both the reported maximum daily flow and for a one year rolling average of the maximum daily flow (provided to reduce the impact of seasonality on the regression results). The linear regressions indicates a weak trend over this time period of increasing maximum daily flow; while most of the variability from year to year is due to changes in precipitation, the trends are generally inconsistent with reduction in maximum daily flow over this time period. This indicates that I/I has not been reduced in either system.

Figure 5. CRPCD Daily Maximum Flow Trends

a. Reported Daily Maximum Flows



b. One Year Rolling Average of Daily Maximum Flows

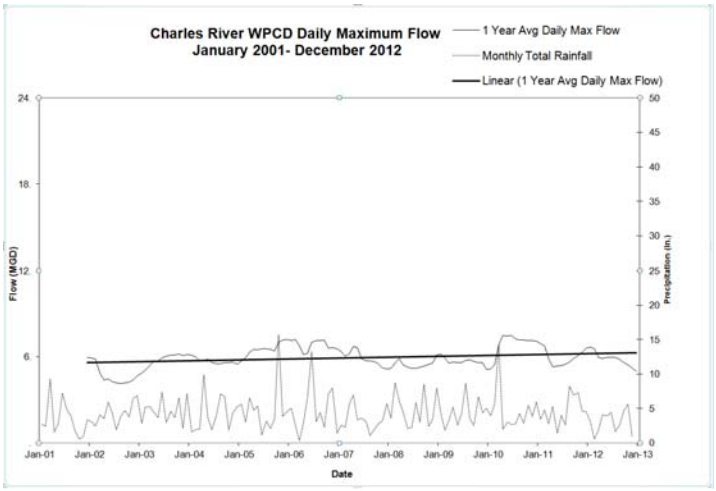
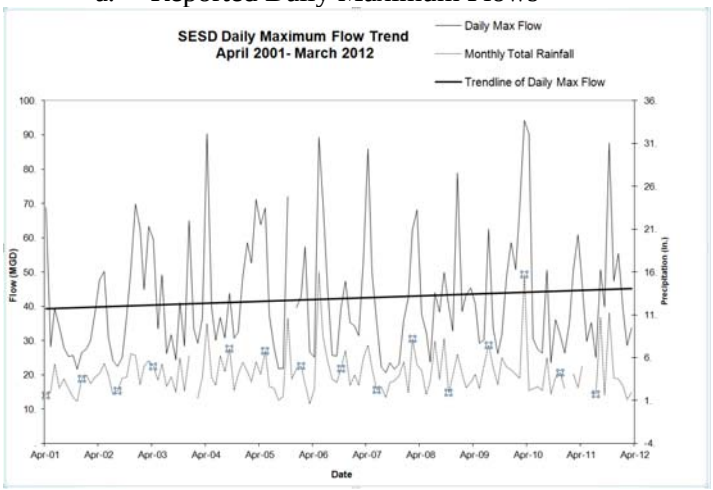
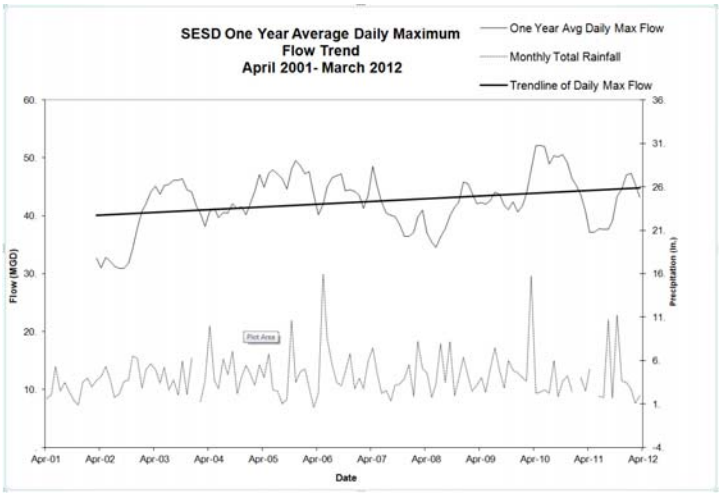


Figure 6. SESD Daily Maximum Flow Trend

a. Reported Daily Maximum Flows



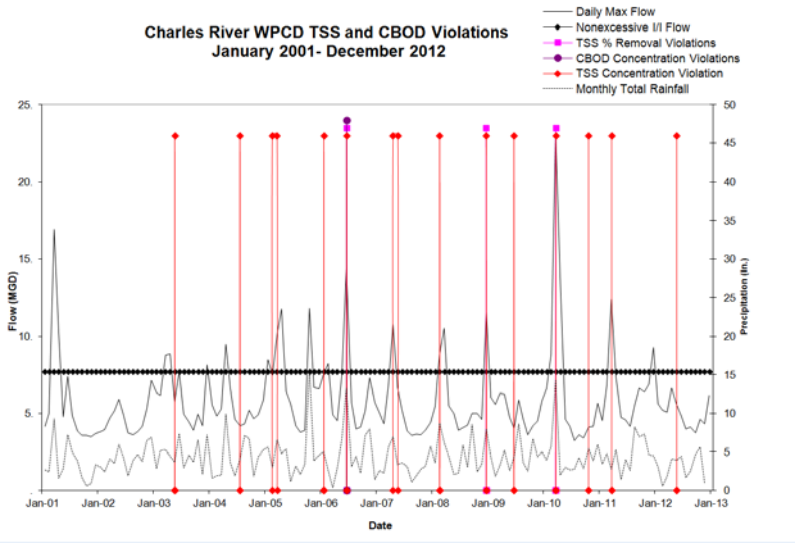
b. One Year Rolling Average of Daily Maximum Flows



III. Violations Associated with Wet Weather Flows

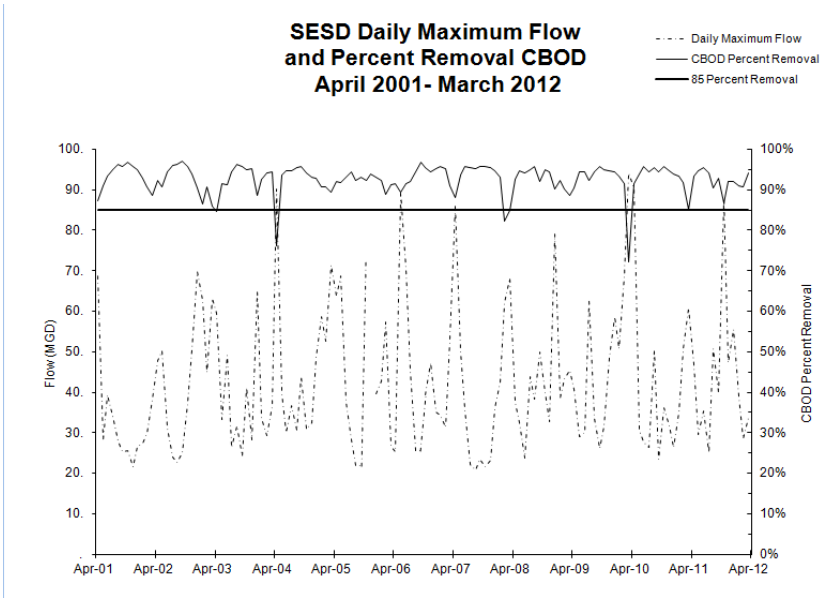
The CRPCD has experienced permit violations that appear to be related to I/I, based on their occurrence during wet weather months when excessive I/I standards are exceeded. Figure 7 shows violations of CRPCD's effluent limits for CBOD (concentration) and TSS (concentration and percent removal). Thirteen of the nineteen violations occurred during months when daily maximum flows exceeded the EPA standard.

Figure 7. CRPCD CBOD and TSS Effluent Limit Violations



In addition, SESD has been unable to achieve the secondary treatment requirement of 85% CBOD removal, also related to I/I. Figure 8 shows SESD's results for removal of CBOD, in percentage, as compared to maximum daily flow. SESD had three months where CBOD removal fell below 85%, all during months with high maximum daily flows. While SESD's current permit requires 85% removal in dry weather, so that these excursions did not constitute permit violations, SESD's proposed draft permit does not limit this requirement to dry weather. Relief from the 85% removal requirement is allowed only when the treatment plant receives flows from CSOs or if it receives less concentrated influent wastewater from separate sewers that is not the result of excessive I/I (including not exceeding the 275 gpcpd nonexcessive I/I standard). 40 CFR § 133.103(a) and (d).

Figure 8. SESD CBOD Percent Removal



IV. SSO Reporting

In addition, both of these regional POTWs have experienced SSOs within the municipal satellite collection systems. In the SESD system, Beverly, Danvers, Marblehead and Peabody have reported SSOs between 2006 and 2008, based on data provided by MassDEP. In the CRPCD system, Bellingham reported SSOs in its system between 2006 and 2009.

Exhibit C

Form of Regional Administrator's or Authorized Delegate's Waiver of Permit Application Requirements for Municipal Satellite Collection Systems

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

Re: Waiver of Permit Application and Signatory Requirements for [Municipal Satellite Sewage Collection System]

Dear _____:

Under NPDES regulations, all POTWs must submit permit application information set forth in 40 C.F.R. § 122.21(j) unless otherwise directed. Where the Region has "access to substantially identical information," the Regional Administrator [or Authorized Delegate] may waive permit application requirements for new and existing POTWs. *Id.* Pursuant to my authority under this regulation, I am waiving NPDES permit application and signatory requirements applicable to the above-named municipal satellite collection systems.

Although EPA has the authority to require municipal satellite collection systems to submit individual permit applications, in this case I find that requiring a single permit application executed by the regional POTW treatment plant owner/operator will deliver "substantially identical information," and will be more efficient, than requiring separate applications from each municipal satellite collection system owner/operator. Municipal satellite collection system owners/operators are expected to consult and coordinate with the regional POTW treatment plant operators to ensure that any information provided to EPA about their respective entities is accurate and complete. In the event that EPA requires additional information, it may use its information collection authority under CWA § 308. 33 U.S.C. § 1318.

This notice reflects my determination based on the specific facts and circumstances in this case. It is not intended to bind the agency in future determinations where a separate permit for municipal satellites would not be duplicative or immaterial.

If you have any questions or would like to discuss this decision, please contact [EPA Contact] at [Contact Info].

Sincerely,

Regional Administrator

Pepperell WWTF Fact Sheet Attachment B - Discharge Monitoring Report Effluent Data

Date	1.1 MGD Flow Mo Av	Mon MGD Flow Dy Mx	176 lbs/Day BOD Mo Av	19 mg/l BOD Mo Av	Mon mg/l BOD Dy Mx	85% BOD Rem	176 lbs/Day TSS Mo Av	19 mg/l TSS Mo Av	Mon mg/l TSS Dy Mx	85% TSS Rem
01/31/2010	.5018	.632	28.7	7.1	13.4	96.2	45.3	10.8	26.	95.4
02/28/2010	.503	.873	52.3	12.5	17.7	92.5	38.7	9.1	13.1	96.2
03/31/2010	.5206	1.824	70.1	9.8	14.3	95.3	163.6	9.2	17.6	95.2
04/30/2010	.525	1.09	15.	3.	6.3	98.5	31.9	6.	12.	97.2
05/31/2010	.521	.558	13.	3.1	4.2	98.4	24.5	5.9	14.4	97.9
06/30/2010	.519	.524	17.8	4.3	7.9	97.6	23.3	5.9	14.8	98.
07/31/2010	.5117	.495	11.1	3.1	6.65	98.4	15.2	4.2	8.8	98.5
08/31/2010	.5093	.574	12.7	3.5	5.14	97.6	16.5	4.6	8.	96.2
09/30/2010	.5085	.568	10.5	2.8	4.4	98.3	17.9	4.8	7.6	97.5
10/31/2010	.5082	.555	22.7	5.5	10.2	97.1	18.4	4.7	12.8	98.6
11/30/2010	.5076	.534	27.5	6.8	9.2	95.8	20.8	5.2	10.	97.9
12/31/2010	.5047	.5605	29.7	7.9	15.3	95.6	22.9	6.	12.8	97.7
01/31/2011	.502	.545	16.6	4.3	4.9	97.4	17.3	4.6	8.8	98.6
02/28/2011	.498	.589	14.7	3.9	4.2	97.8	28.1	6.9	11.4	97.7
03/31/2011	.4988	1.82	34.9	4.5	8.9	96.6	54.2	7.4	10.8	96.2
04/30/2011	.4957	.665	19.3	3.9	6.	96.6	27.3	5.6	7.6	97.8
05/31/2011	.4997	.666	18.6	4.	5.15	97.7	26.8	5.9	9.6	97.9
06/30/2011	.502	.592	16.5	3.8	5.38	97.4	23.2	5.5	13.6	97.8
07/31/2011	.5048	.547	7.6	2.	2.96	98.8	18.9	4.9	8.	98.1
08/31/2011	.513	.711	15.2	3.4	6.32	97.9	25.1	5.7	10.	98.1
09/30/2011	.52	.643	17.1	3.8	5.5	98.4	25.1	5.7	8.8	97.7
10/31/2011	.528	.658	5.	1.1	2.31	99.2	25.2	5.5	9.8	96.8
11/30/2011	.5359	.6966	23.	4.4	9.78	96.3	20.4	4.7	9.2	97.
12/31/2011	.5423	.6462	17.	3.7	4.77	97.3	25.2	5.5	10.	97.2
01/31/2012	.5457	.619	16.1	4.	6.9	97.1	23.2	5.6	11.2	97.5
02/29/2012	.545	.543	13.7	3.5	5.86	97.6	27.3	7.	11.2	97.5
03/31/2012	.519	.529	15.6	3.8	7.03	97.1	30.4	6.5	10.8	97.4
04/30/2012	.5097	.641	14.2	3.8	5.9	97.1	23.1	5.7	10.4	97.3
05/31/2012	.506	.579	18.3	4.3	5.57	97.1	23.4	5.6	10.8	96.7
06/30/2012	.5043	.566	13.9	3.4	4.9	98.4	17.1	4.2	6.8	98.7
07/31/2012	.5031	.501	37.8	9.9	17.5	92.7	15.2	4.1	6.8	98.6

Date	1.1 MGD Flow Mo Av	Mon MGD Flow Dy Mx	176 lb BOD Mo Av	19 mg/l BOD Mo Av	Mon mg/l BOD Dy Mx	85% BOD Rem	176 lb TSS Mo Av	19 mg/l TSS Mo Av	Mon mg/l TSS Dy Mx	85% TSS Rem
08/31/2012	.4997	.549	33.3	8.6	13.2	95.3	13.8	3.6	6.	98.9
09/30/2012	.4919	.5461	27.6	7.3	9.76	95.7	15.1	4.	16.	99.1
10/31/2012	.488	.698	32.9	7.5	8.99	95.1	14.9	3.3	7.2	99.2
11/30/2012	.4856	.6592	22.2	5.3	7.55	97.5	15.9	3.6	6.8	98.9
12/31/2012	.4832	.651	17.6	4.4	5.79	97.5	14.2	3.7	6.4	99.
01/31/2013	.543	.591	53.8	12.2	26.6	92.7	18.3	3.9	10.	98.6
02/28/2013	.5745	.7436	10.6	2.1	2.46	98.3	14.9	3.1	5.2	99.
03/31/2013	.602	.69	24.7	4.8	10.2	95.5	24.6	4.9	8.4	97.9
04/30/2013	.496	.567	19.8	4.6	8.7	94.5	13.4	3.2	5.2	98.9
05/31/2013	.476	.559	11.6	2.9	3.98	97.6	15.2	3.8	6.	98.9
06/30/2013	.524	.676	32.1	7.	9.78	95.	19.7	4.6	10.	98.5
07/31/2013	.453	.568	15.8	4.	9.6	96.8	17.6	4.4	13.2	98.5
08/31/2013	.411	.507	19.	5.6	10.9	96.6	12.4	3.7	8.4	98.8
09/30/2013	.4119	.4846	10.1	3.	4.78	97.7	13.7	4.1	7.2	98.7
10/31/2013	.414	.47	11.9	3.43	5.39	97.9	16.	4.5	11.6	98.3
11/30/2013	.3998	.56	22.83	5.8	12.1	98.68	20.	6.	12.8	98.4
12/31/2013	.421	.564	24.4	7.3	15.28	96.2	26.9	7.8	14.	98.2
Ave	0.50	0.66	21.59	5.02	8.32	94.88	25.04	5.32	10.37	95.91
Max	.602	1.824	70.1	12.5	26.6	99.2	163.6	10.8	26.	99.2

Date	200/100 ml Fecal Av	400/100 ml Fecal Mx	6.5 SU pH Mn	8.3 SU pH Mx
01/31/2010	5.	35.	5.94	7.03
02/28/2010	3.6	22.	5.94	6.99
03/31/2010	4.9	173.	6.27	7.
04/30/2010	1.6	7.	6.62	7.45
05/31/2010	2.	16.	6.5	7.4
06/30/2010	13.6	114.	6.42	6.78
07/31/2010	43.	117.	6.36	7.48
08/31/2010	20.	116.	6.11	7.7
09/30/2010	16.4	65.	6.34	7.28
10/31/2010	48.	245.	6.6	7.58
11/30/2010	7.6	51.	6.6	7.29
12/31/2010	7.3	41.	6.5	7.
01/31/2011	4.	30.	6.6	7.
02/28/2011	34.	533.	6.52	7.4
03/31/2011	9.	416.	6.29	7.21
04/30/2011	10.	90.	6.62	7.45
05/31/2011	17.3	179.	6.7	7.4
06/30/2011	6.5	21.	7.04	7.95
07/31/2011	9.	57.	6.6	7.67
08/31/2011	12.7	65.	6.59	7.65
09/30/2011	18.4	136.	6.47	7.3
10/31/2011	7.	15.	6.5	7.1
11/30/2011	6.4	55.	6.68	6.93
12/31/2011	6.	41.	6.5	7.01
01/31/2012	8.	133.	6.69	7.94
02/29/2012	20.	83.	6.4	7.11
03/31/2012	33.	146.	6.6	7.
04/30/2012	5.	101.	6.5	7.35
05/31/2012	8.3	62.	6.6	7.3
06/30/2012	4.	8.	6.8	7.6

Date	88 lbs/Day NH3 Mo Av	10 mg/l NH3 Mo Av	20 mg/l NH3 Wk Av
05/31/2010	2.9	.71	.71
06/30/2010	1.52	.36	.36
07/31/2010	3.	.8	.8
08/31/2010	6.3	1.8	1.8
09/30/2010	6.6	1.8	1.8
10/31/2010	12.	2.9	2.9
05/31/2011	5.51	1.2	1.2
06/30/2011	2.22	.49	.49
07/31/2011	2.7	.7	.7
08/31/2011	3.8	.8	.8
09/30/2011	8.6	2.1	2.1
10/31/2011	6.3	1.4	1.4
05/31/2012	4.83	1.14	1.14
06/30/2012	5.79	1.35	1.35
07/31/2012	11.3	3.	3.
08/31/2012	8.3	2.3	2.3
09/30/2012	11.7	3.2	6.
10/31/2012	11.7	2.8	5.4
05/31/2013	5.81	2.4	2.7
06/30/2013	11.9	2.53	2.9
07/31/2013	11.	2.7	5.3
08/31/2013	6.1	1.8	2.5
09/30/2013	4.6	1.4	2.9
10/31/2013	6.2	1.8	2.7
Average	6.7	1.7	2.2
Max	12.0	3.2	6.0

Date	100% LC50 Dy Mn
06/30/2009	100.
09/30/2009	100.
06/30/2010	100.
09/30/2010	100.
06/30/2011	100.
09/30/2011	100.
06/30/2012	100.
09/30/2012	100.
06/30/2013	100.
09/30/2013	100.
Average	100.
Max	100.

Date	200/100 ml Fecal Av	400/100 ml Fecal Mx	6.5 SU pH Mn	8.3 SU pH Mx
07/31/2012	8.	31.	6.78	7.4
08/31/2012	22.	105.	6.8	7.02
09/30/2012	68.	892.	6.7	8.
10/31/2012	5.	19.	6.7	7.1
11/30/2012	41.	281.	6.93	7.29
12/31/2012	10.	241.	6.5	7.01
01/31/2013	10.	400.	6.5	7.3
02/28/2013	2.6	6.	6.7	8.
03/31/2013	18.2	971.	6.5	7.
04/30/2013	1.35	8.	6.6	7.1
05/31/2013	25.5	88.	6.5	7.2
06/30/2013	46.	380.	6.5	7.
07/31/2013	8.	13.	6.6	7.3
08/31/2013	6.4	27.	6.4	7.1
09/30/2013	12.4	18.	6.5	7.
10/31/2013	2.	5.	6.5	7.1
11/30/2013	7.7	16.	6.2	6.8
12/31/2013	1.5	2.	6.5	6.8
Average	14	139	6.5	7.3
Max	68	971	5.9	8.0
			Ph Min↑	

Winter Months

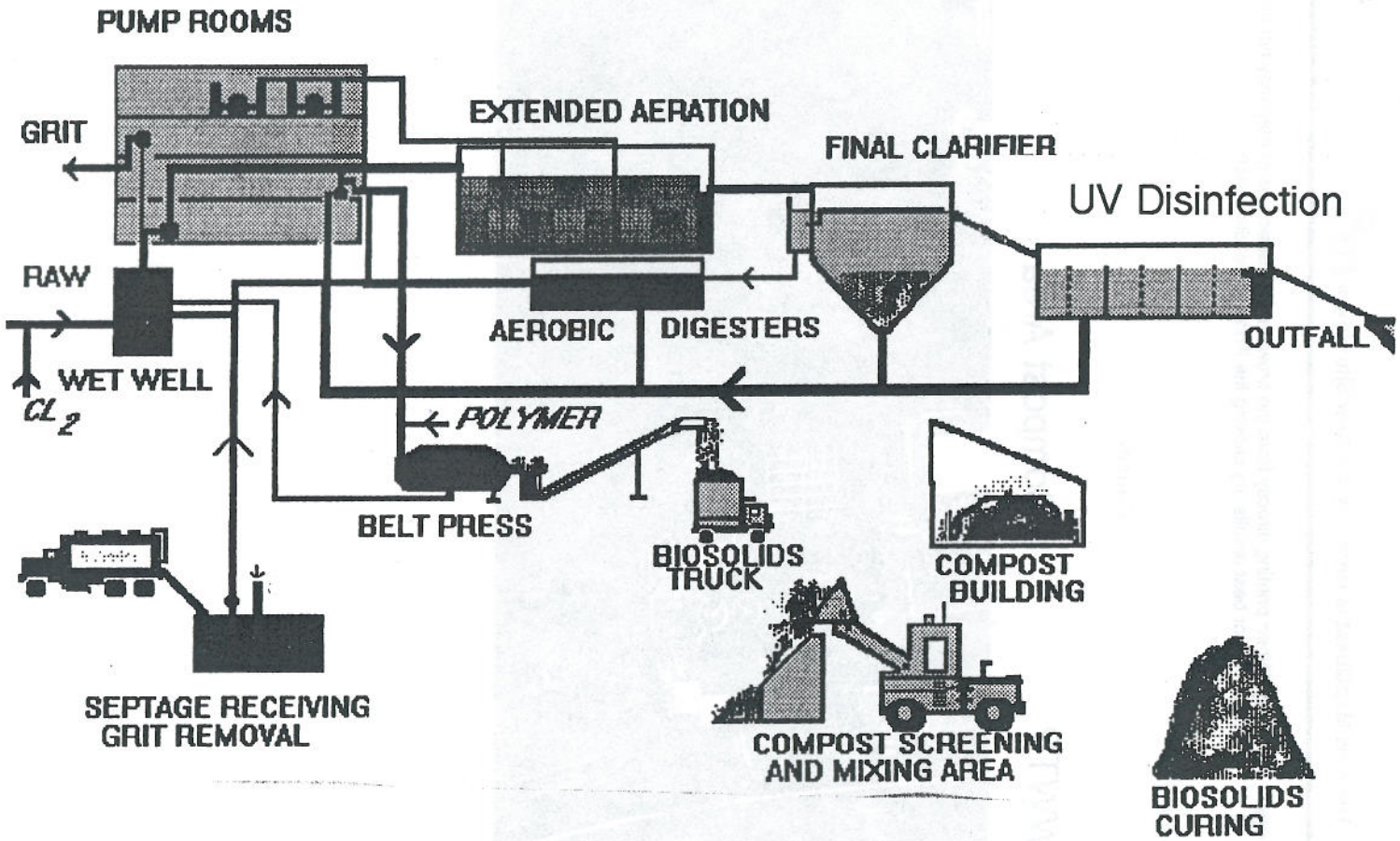
	Mon mg/l O-Ph Mo Av	Mon mg/l O-Ph Dy Mx	Mon mg/l T-Ph Mo Av	Mon mg/l T-Ph Dy Mx
01/31/2010	4.66	4.9	3.8	3.85
02/28/2010	5.31	5.75	3.7	4.23
03/31/2010	3.65	6.44	2.3	2.75
11/30/2010	.58	.83	.67	.72
12/31/2010	1.59	.86	1.07	1.87
01/31/2011	2.86	3.56	2.4	2.8
02/28/2011	3.16	5.82	2.2	3.15
03/31/2011	3.08	4.25	2.1	3.15
11/30/2011	3.08	4.22	3.9	4.8
12/31/2011	2.08	3.1	1.95	2.98
01/31/2012	2.98	3.37	3.	3.38
02/29/2012	3.48	3.58	3.4	3.57
03/31/2012	3.24	4.8	3.24	4.8
11/30/2012	.51	.66	.89	.98
12/31/2012	2.34	2.85	2.57	3.39
01/31/2013	2.4	3.2	2.5	3.21
02/28/2013	2.47	3.64	3.69	3.95
03/31/2013	2.86	3.58	3.21	3.91
11/30/2013	1.11	1.52	1.42	1.75
12/31/2013	2.4	3.24	2.73	3.66
Average	2.7	3.5	2.5	3.1
Max	5.3	6.4	3.9	4.8

Summer Months

Date	1.0 mg/l T-Ph Mo Av	Mon mg/l T-Ph Dy Mx
04/30/2010	.5	1.3
05/31/2010	.47	.53
06/30/2010	.33	.36
07/31/2010	.4	.47
08/31/2010	.71	.93
09/30/2010	.89	.95
10/31/2010	.62	.76
04/30/2011	.65	.81
05/31/2011	.98	1.36
06/30/2011	.82	.93
07/31/2011	.68	.81
08/31/2011	.71	.91
09/30/2011	.64	.73
10/31/2011	.78	.94
04/30/2012	.57	.93
05/31/2012	.7	.75
06/30/2012	.7	.98
07/31/2012	.88	1.
08/31/2012	.95	1.22
09/30/2012	.98	1.3
10/31/2012	.63	.67
04/30/2013	.87	.99
05/31/2013	.84	1.17
06/30/2013	.74	.84
07/31/2013	.75	1.09
08/31/2013	.72	.9
09/30/2013	.72	.92
10/31/2013	.85	.95
Average	0.7	0.9
Max	1.0	1.4

Fact Sheet Attachment C - Pepperell POTW Aerial Photograph

Pepperell Fact Sheet Attachment D



PEPPERELL WASTEWATER TREATMENT PLANT
PEPPERELL, MASSACHUSETTS

DESIGN FLOW	0.705 MGD
AVERAGE FLOW	0.350 MGD

Attachment E

INDUSTRIAL AND COMMERCIAL PROPERTIES FOR MADEP SURVEY

POTW FACILITY NAMEN: PEPPERELL WASTEWATER TREATMENT PLANT
PERMIT NO.: MA0100064
CONTACT NAME; Carmen DeFillippo Title: Chief Operator
PHONE: 978-4339859

No.	Facility Name	Street	Town	SIC Code	Max. Daily Flow (gpd)
1	Horn Packaging	1 Chaplel Place	Pepperell	5133	1080
2	Johnson Creative Arts	4 Lomar Park	Pepperell	2390	3740
3	Astron Inc.	21 Lomar Park	Pepperell	3469	407
4	UniTech Engineering, Inc.	27 Lomar Park	Pepperell	3541	689
5	Pepperell Braiding Co.	22 Lowell Road	Pepperell	2241	332
6	Insco Corp.	412 Main Street	Groton	3566	499
7	Delux Corp.	500 Main Street	Groton	2782	5244
8	Clark's Auto Body	28 Hollis Street	Pepperell	7531 & 7535	
9	Groton Collision Repair	455 Main Street	Groton	7531& 7535	
10	Conway Chevy-Buick	23-29 Hollis Street	Pepperell	7530	465
11	Auto Clinic	17Nashua Rd.	Pepperell	7530	116
12	Andy's Auto/Small Engine Service	Willowdale Ave.	Groton	7530	
13	Community Garage	117 Main Street	Pepperell	7530 & 7535	75
14	Holmes Auto Repair	16 Nashua Rd.	Pepperell	7530	
15	Piper's Foreign & Domestic Motor	15 Elm Street	Groton	7530	
16	LAS Truck & Auto	41Lomar Park	Pepperell	7530	
17	Squnannacook Radiator & Auto	Willowdale Ave.	Groton	7530	
18	Primrose Car Wash	67 Groton Street	Pepperell	7542	1828
19	Site & Signs	78 Main Street	Pepperell	7333	
20	Reservoir Resources Inc.	28 Lomar Park	Pepperell	4210	
21	Borman Brothers	30 Lomar Park	Pepperell	4210	
22	RA Mechanical	16 Lomar Park	Pepperell	3444	
23	Greco Graphic Inc.	491 Main Street	Groton	7220	
24	A-Picture's Worth	30-B Hollis Street	Groton	7220	
25	DeCicco Photography	10 Lomar Park	Pepperell	7220	

No.	Facility Name	Street	Town	SIC Code	Max. Daily Flow (gpd)
26	Broadmeadow Sign-Studio	200 Hollis Street	Groton	7333	
27	Groton Cleaners	232 main Street	Groton	7210	
28	Magic Touch Cleaners	146 Main Street	Groton	7210	
29	Simard Laundromat	112 Main Street	Pepperell	7210	2992
30	Sim's Cleaners	131 Main Street	Pepperell	7210	
31	Badger Funeral Home Inc.	45 School Street	Groton	7260	
32	Hamilton-McGaffigan Funeral Home	37 Main Street	Pepperell	7260	274
33	Marchand Funeral Home	16 Pleasant Street	Pepperell	7260	498
34	Seven Hills Extended Care Facility	22 Hillside Ave.	Groton	8050	
35	McClellan Oil Company	16 Groton Street	Pepperell	4230 & 5983	681
36	Mass. Electric	13 Groton Street	Pepperell	4910	8.3
37	Kemp's Garage	48 Groton Street	Pepperell	7530 & 5540	548
38	Kirk Motor Motors	52 Groton Street	Pepperell	7530	74
39	Jale Inc.	18 Lomar Park	Pepperell		50
40	Donelan's Super Market	75 A Main Street	Pepperell	5410	2500
41	Donelan's Super Market	240 Main Street	Groton	5410	
42	Community Auto	129 Main Street	Pepperell	5540 & 7530	
43	Pepperell WWTP	47 Nashua Rd.	Pepperell	4952	4155
44	Toomey's Citgo	8 Townsend Street	Pepperell	7530	33

Response to Public Comments

In a ccordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the draft NPDES Permit, # MA0100064. The response to comments explains and supports the EPA determinations that form the basis of the final permit. From February 18, 2015 through April 3, 2015, the United States Environmental Protection Agency ("EPA") and the Massachusetts Department of Environmental Protection ("MassDEP") (together, the "Agencies") solicited public comments on a draft NPDES permit, # MA0100064, developed pursuant to a permit application from the Town of Pepperell Sewer Commission ("Pepperell", "Town" or "Permittee" hereafter), for the reissuance of a National Pollutant Discharge Elimination System ("NPDES") permit to discharge treated municipal and industrial wastewater from outfall number 001 to the Nashua River. The NPDES permit was last issued on December 22, 2005, with an effective date of February 20, 2006, and expired on February 19, 2011. The expired 2005 permit was administratively extended because the applicant filed a complete application for permit reissuance as required by 40 Code of Federal Regulations (CFR) § 122.6.

The Town was the only commenter. After a review of the comments received, EPA has made a final decision to issue this permit authorizing these discharges. Although EPA's decision-making process has benefitted from the various comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permit. EPA did, however improve certain analyses, clarify certain requirements, and make some minor changes in response to comments. The reasoning and analyses supporting these changes are explained in the responses to individual comments that follow.

Changes from the draft permit to the final permit

1. The 0.5 mg/L average monthly Total Phosphorus (TP) limit was removed from the final permit. The 1.0 mg/L average monthly seasonal limit shall apply year round. See response to comment 1.
2. The TP mass loading (4.6 lbs /day) limit was removed from the final permit. See response to comment 1.
3. A compliance schedule for attaining the total phosphorus winter limit has been added. See response to comment 1a.
4. The sampling instructions for effluent and instream copper have been simplified. See response to comment 4.
5. The reporting requirements in Section E of the final permit have been made clear. See response to comment 10.
6. Language was added to Section C of the final permit to clarify that both the permittee and co-permittee are responsible for the operation and maintenance of their respective sewer systems.

Copies of the final permit may be obtained by writing or calling Doug Corb of EPA's NPDES Municipal Permits Branch (OEP 06-1), Office of Ecosystem Protection, 5 Post Office Square, Suite 100, Boston, MA 02109-3912; Telephone: (617) 918-1565 or e-mail corb.doug@epa.gov or may be found at: https://www3.epa.gov/region1/npdes/permits_listing_ma.html

Comments submitted by Town of Pepperell Sewer Commission

Note: The comment numbers contained within this Response to Comments do not correspond to the numbered comments submitted.

Comment 1

Total Phosphorus [TP]. The proposed permit identifies an effluent limitation of 1.0 mg/l for the period of November 1 – March 31 and limits of 4.6 lbs./day - 0.5 mg/l monthly average for the period from April 1 – October 31. The supporting documentation cites a draft (unavailable to the Town) Total Maximum Daily Load study as the rationale for the limitations.

Response to Comment 1

EPA acknowledges that the revised (second) draft Total Maximum Daily Load (TMDL) which was submitted to EPA on January 8, 2014, and was referenced in the fact sheet of the draft permit, was never finalized by MassDEP. The 2014 draft TMDL study also was not provided to the public for review as EPA had anticipated it would be at the time the fact sheet was written. Since neither the publicly available 2007 draft TMDL nor the revised 2014 draft TMDL were finalized and approved by EPA, EPA has reassessed the phosphorus limits based on upstream TP data recently acquired from MassDEP, as discussed below.

MassDEP collected TP samples at a location 0.4 miles upstream of the Pepperell discharge from 2005 to 2013 (see Table A-1 in Attachment A). For the TP sample location, see Figure 1. The MassDEP TP data included samples taken during a variety of flow conditions with mean monthly flows ranging from 111 to 2,189 cfs. As shown on Figure 2, mean monthly flows and TP concentrations appear to fluctuate together with higher flows associated with higher TP concentrations and lower flows associated with lower TP concentrations. In calculating a new TP limit, EPA used the median TP concentration to estimate upstream receiving water conditions.

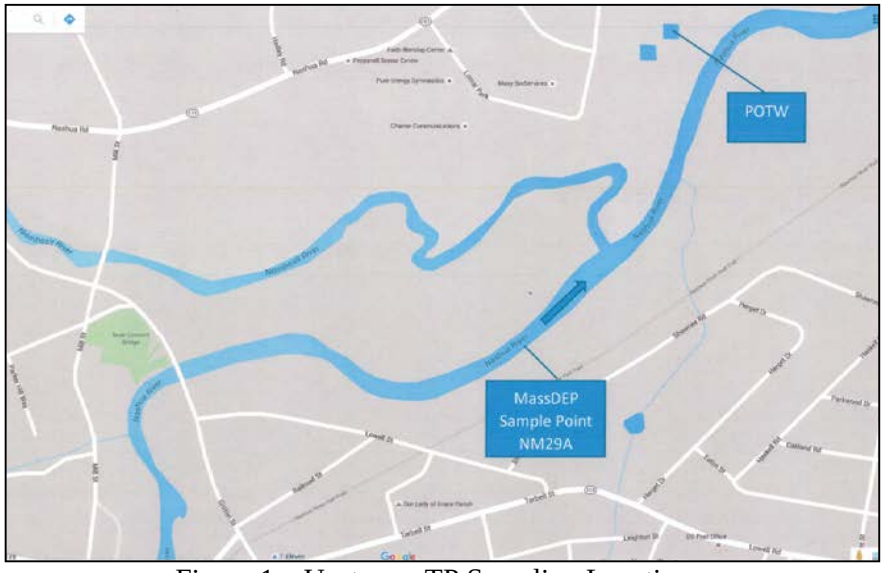
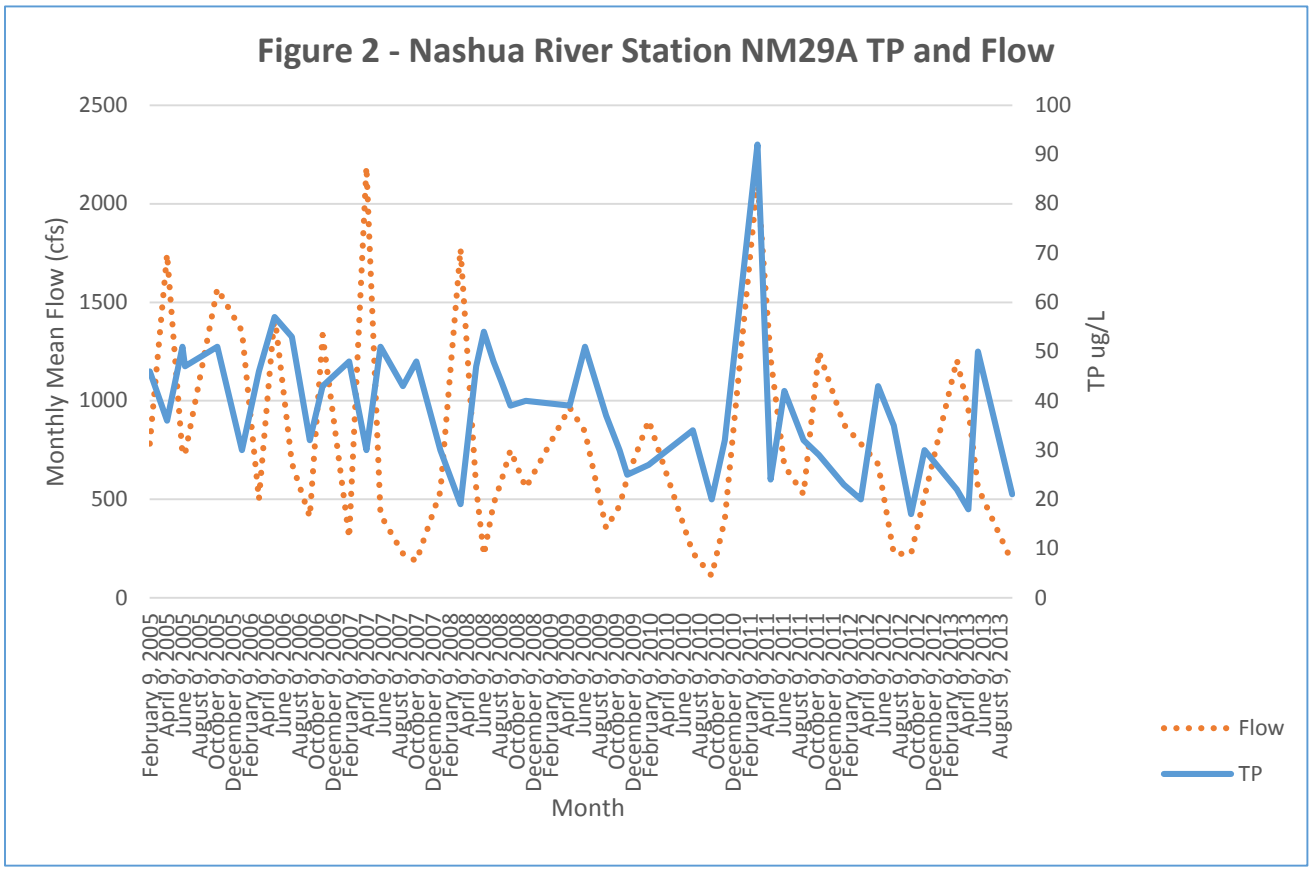


Figure 1 – Upstream TP Sampling Location



EPA recalculated the maximum effluent limit that would achieve a downstream criterion of 100 µg/L or less, C_d, as follows.

$$C_d = \frac{(Q_r C_r) - (Q_s C_s)}{Q_d} = 1{,}544 \text{ µg/L} = 1.5 \text{ mg/L}$$

where:

Q_s = the 7Q10 river flow upstream of plant is 39.6 cfs;
Q_d = the effluent flow from plant is 1.1 MGD (1.7 cfs);
Q_r = the combined river flow (7Q10 + plant flow) is 41.3 cfs;
C_s = the upstream TP concentration is 38 µg/L; and
C_r = the maximum allowable receiving water TP downstream is 100 µg/L.

The anti-backsliding provisions, found in Sections 402(o) and 303(d)(4) of the CWA and at 40 CFR 122.44(l), prohibit the relaxation of permit limits in reissued permit unless certain conditions are met. The 2005 permit average monthly TP limit of 1.0 mg/L does not meet any of the exceptions to the backsliding rule, therefore the 2005 permit limit is retained in the final permit.

The public noticed draft permit included a seasonal (April 1 through October 31) average monthly TP mass loading limit of 4.6 lbs/day and a 0.5 mg/L average monthly TP concentration

limit. The final permit will require reporting of the average monthly TP load (lbs/day) in place of the 4.6 lbs/day limit. The public noticed draft permit included a seasonal (November 1 through May 31) average monthly TP concentration limit of 1.0 mg/L to control the fate and transport of particulate phosphorus, which may settle out in downstream impounded areas, as discussed in the fact sheet for the draft permit (see fact sheet page 21). Therefore, the 1.0 mg/L TP limit now applies year-round.

Comment 1a

This permit change represents a significant burden to the facility as the current design and equipment will not allow for these levels to be met upon permit issuance.

Response to comment 1a

The agencies recognize that meeting the new 1.0 mg/L winter limit will require changes in the treatment plant operation. Pepperell is currently using a flocculant addition and precipitation system to meet the 1.0 mg/L TP limit during warm weather months. The final permit (See Section F) includes the following schedule of compliance to meet total phosphorus limits year-round.

The Permittee shall meet the following schedule for achieving the year-round total phosphorus limit:

> Within five (5) months of the effective date of the permit, identify upgrades required to meet new winter limit.
>
> Within eight (8) months of the effective date of the permit, develop a preliminary design of upgrades.
>
> Within eighteen (18) months of the effective date of the permit, complete construction, startup and optimization of facility improvements necessary to achieve the final phosphorus permit limit.
>
> The permittee shall notify EPA in writing of progress toward achieving each milestone within 30 days of the scheduled date.

Comment 1b

The original draft TMDL that is available on-line relies on data that is nearly twenty years old to make its determinations. The fact sheet accompanying the permit states that the data used was taken in 1999 (later data was eliminated from consideration). Without the benefit of the updated TMDL using current river quality data, it is impossible to say if the analysis is complete and accurate.

Virtually every NPDES permitted discharge upstream of Pepperell has implemented significant phosphorus removal projects. These projects would have resulted in dramatic changes in the River concentrations of phosphorus. Issuing a change to Pepperell without the benefit of updating the TMDL may impose costs on Pepperell without any benefit in water quality.

Response to comment 1b

EPA is no longer using the draft TMDL as a basis for the TP limits. The instream TP data gathered by the MassDEP reflects more recent upstream reductions in riverine phosphorus. Please see the Response to Comment 1.

Comment 1c

The issuance of a concentration limit seems counterintuitive to the TMDL study, which developed a daily mass or load for the discharge of phosphorus from the plant.

Response to comment 1c

EPA is no longer using the draft TMDL as a basis for the TP limits. Please see the Response to comment 1.

Comment 1d

The rationale for decreasing the allowable levels of phosphorus is on a purported impoundment downstream of the facility. This "impoundment" has been in existence for a longer period of time than the treatment plant has been in existence. It seems disingenuous to now use it as an excuse to change the treatment plant permit. Additionally no visual impairments were noted during DEP water quality assessments. It appears that the limit change is associated with a perception [rather] than an actual need.

Response to comment 1d

EPA disagrees with the presumption that protection of the downstream impoundment is more a matter of perception rather than an actual need. The Mine Falls Dam Impoundment, located 6 river miles below the Pepperell discharge in New Hampshire, shows evidence of excessive phosphorus enrichment. In particular, reported chlorophyll concentrations, a proxy for phosphorus enrichment, are high.[1]

"Chlorophyll a" is an estimate of the biomass of planktonic algae in the river. The technical term "biomass" is used to represent "amount by weight." Chlorophyll a can be strongly influenced by phosphorus, which is derived by natural and human activities.

New Hampshire does not have numeric water quality criteria for Chlorophyll a. They do however, offer the following illustrative categories in µg/L:

< 3 Excellent 3 - 7 Good 7 - 15 Less than desirable > 15 Nuisance

The range of concentrations of 11 chlorophyll a samples taken above the Mine Falls Dam is 1.62 µg/L to 15.70 µg/L with an average of 8.4 µg/L which is "less than desirable." The maximum value of 15.7 µg/L is designated as "nuisance." See Table A-2 in Attachment A.

[1] New Hampshire Department of Environmental Services, on-line Description of River Water Quality Parametershttp://des.nh.gov/organization/divisions/water/wmb/vrap/documents/wq-resultsinfo.pdf

During low flow conditions the Mine Falls impoundment traps phosphorus much like a lake. The total phosphorus samples taken above the Mine Falls Dam averaged 43 µg/L, with a maximum concentration of 96 µg/L, well above the EPA recommended threshold of 50 ug/L[2] TP in any stream at the point where it enters any lake or reservoir. This is to avert biological nuisances and to control accelerated or cultural eutrophication in lakes and reservoirs.

Further, the EPA criteria state that total phosphates as phosphorus (P) should not exceed 25 µg/L within the lake or reservoir.

The current Massachusetts Integrated List of Waters, Year 2012 dated March, 2013, states that the 3.7 mile segment of the Nashua River from the Pepperrell Dam to the New Hampshire Border (Segment MA81-07) is listed as a Category 5 Water, "Waters requiring a TMDL", for TP and aquatic macroinvertebrate bioassessments.

The Massachusetts Surface Water Quality Standards (314 CMR 4.00) contain a narrative standard that prohibits discharges containing nutrients in concentrations that would "cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae", and otherwise render waters unsuitable for designated uses.

The three mile segment of the Nashua River between the Pepperell discharge and the NH border is free flowing. River water samples collected in Hollis, NH, about 4 miles below Pepperell, have a total phosphorus range of 0.017 mg/L to 0.362 mg/L (See Table A-3 in Attachment A). The Gold Book recommends a threshold target of 0.1 mg/L applicable in free-flowing streams.[3] The highest reported concentration is more than three and one half times the EPA recommended threshold concentration for free-flowing streams.

A total phosphorus limit is needed to protect the Nashua River downstream of Pepperell, and the 1.0 mg/L phosphorus limit will apply year-round in the Final Permit.

Comment 1e

The dilution ratio has been reduced as a result of updated gauging information. We are concerned as this change could be related to water management by others (MWRA – Wachusett Reservoir) upstream and not as a result of natural causes. We disagree with the need to modify the value unless more thorough research into the inputs and controls of the River is performed.

Response to comment 1e

Water quality-based effluent limits are based on the best available data which will reflect current hydrological conditions in the receiving water. Available dilution is reassessed at every permit reissuance to ensure that pollutant levels in the receiving water do not exceed state water quality criteria and designated uses are protected. The reassessment is required regardless of whether

[2] EPA, Quality Criteria for Water, 1986, EPA 440/5-86-001
http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/upload/2009_01_13_criteria_goldbook.pdf

[3] ibid.

hydrological changes are due to natural or anthropogenic causes. For this permit reissuance, the most recent twenty year USGS period of record (starting October of 1993) was used to recalculate the 7Q10 dilution, rather than the entire period of record (starting in 1937). The February 5, 2015 fact sheet explains why the most recent 20 years of USGS gage station flow data was used:

> "The more recent data will better reflect development and water withdrawals from the watershed, since the previous permit reissuance. Upstream water withdrawals for agriculture, industry, or drinking water all effect the available dilution at the point of Pepperell's discharge, and therefore must be considered in the calculation the actual dilution."

This is consistent with EPA guidance which states that:

> "The permit writer might also account for any additional sources of flow or diversions between the point where a critical low flow has been calculated and the point of discharge."[4]

MassDEP issues water withdrawal permits under the Water Management Act (310 CMR 36.00). EPA recommends that the commenter address concerns regarding changes in water use allotments in the Nashua River to MassDEP. EPA retains the dilution factor as calculated in the fact sheet.

Comment 2

While we understand the need to reasonably control pollutants, we must acknowledge a practical basis for imposing these changes on the Town's citizens. We therefore request that if the EPA deems it necessary that the changes on the Total Phosphorus are indeed warranted, that:

Comment 2a

Any limitation is based upon the loading that is cited in the TMDL. The issuance of a concentration limit is not consistent with the methodology used to develop a TMDL study and could result in the implementation of a more costly solution than required to meet the TMDL. Other plants on the Merrimack River have been issued loading based limits.

Response to comment 2a

The concentration limits for total phosphorus are consistent with other permits within the Nashua River basin. Concentration limits require maintenance of phosphorus treatment during low flow conditions, where loading limits alone may not. The 2007 and 2014 draft TMDLs are no longer being used as the basis for TP limit.

[4] National Pollutant Discharge Elimination System (NPDES) Permit Writers' Manual, EPA-833-K-10-001, September 2010 Page 6-19

Comment 2b

Any changes in the seasonal removal of phosphorus and decrease in the limitations will require at least three years to implement a solution. Reductions in phosphorus below 1.0 mg/L often require a change in technology and/or processes in order to cost effectively treat the wastewater.

We project a minimum four year process including one year of evaluation, one year of design, a third year to construct the necessary improvements, and a fourth year for the startup and optimization of improvements before consistent compliance can be achieved.

Response to comment 2b

The permit no longer requires reductions in total phosphorus to less than 1.0 mg/L. See Response to comment 1a regarding compliance schedules to meet TP limits.

Comment 2c

The plant does not have any capacity to remove phosphorus during the winter season. The process in current use was not installed during the last plant upgrade to be able to be used during the winter season. The implementation for winter season treatment will require the same four year period.

Response to comment 2c

Pepperell is currently using a flocculant addition and precipitation system to meet the 1.0 mg/L TP limit during warm weather months. The final permit includes a compliance schedule of 18 months to modify the existing system to meet the new winter TP limit. 40 C.F.R. §§ 122.47(a), 122.47(a)(1) states that:

> Time for compliance. Any schedules of compliance under this section shall require compliance as soon as possible, but not later than the applicable statutory deadline under the CWA.

EPA Region I has substantial experience establishing compliance schedules in permits for the purpose of meeting new water quality-based nutrient limits. A four year schedule, as requested by the permittee, is most often granted to facilities needing complete plant upgrades to meet far more stringent limits. Winterizing the current chemical addition system should be accomplished in far less time, given that the summer TP effluent limit is not changing.

Comment 2d

Total Recoverable Copper. This limit has been reduced substantially from the previous limits of 103 µg/L monthly average and maximum daily of 141 µg/L. The new limits are 65.7 µg/L and 97.5 µg/L respectively.

While we believe that we are likely to meet these limits without substantial changes to the treatment plant processes we are concerned with the way that the calculation was performed and inconsistencies in the issuance of the limit compared to other plants on the Nashua River.

Response to comment 2d

EPA disagrees with the suggestion that there are inconsistencies in the way that the copper effluent limit was calculated compared to other permits in the Nashua River. In addition to Pepperell, there are 5 other wastewater treatment facilities discharging upstream of Pepperell in the Nashua River System.

The facilities are Fitchburg East, Leominster, Clinton, Ayer, and the Groton School. Fitchburg East, Leominster and Clinton discharge 25 miles or more upstream into the North Nashua River which is subject to Massachusetts site specific copper criteria that are higher in concentration than the criteria applicable to the lower Nashua River

The Groton School, Ayer, and Pepperell discharges all are subject to the lower copper criteria applicable to the Lower Nashua River since Massachusetts has not adopted higher site specific criteria for copper in the river segments into which these 3 facilities discharge.

Ayer's final permit has total copper limits of 4.1 µg/L and 5.6 µg/L. The small Groton School discharge was not found to have reasonable potential to cause or contribute to an exceedance of the instream copper criteria, and thus not given copper limits. EPA evaluated Pepperell's copper limit in the identical manner as that used for both the Groton School and Ayer.

As shown in the February 5, 2015 fact sheet, as long as effluent concentrations are below 65.7 µg/L (monthly average) and 97.5 µg/L (daily maximum), copper levels in the receiving water, downstream of the Pepperell discharge, will be below the water quality criteria. Therefore, the previous permit limits (103 µg/L monthly average and maximum daily of 141 µg/L), are no longer protective.

Additionally, EPA has increased the frequency of ambient sampling to ensure a robust data set for the next permit reissuance.

Comment 3a

The calculation now includes data for upstream copper concentrations as obtained through sampling conducted by the treatment plant. While new data has been used to develop the limit it represents a very limited sample set. Other factors in the methodology and analysis discussed below could prove to invalidate the data and impose a limit on the plant that is unreasonable and contrary to the permitting process. If the plant is unable to meet the limit the small number of data points used is concerning especially considering the potential impact to a treatment plant that is required to spend thousands or millions of dollars in order to comply.

Response to comment 3a

Pepperell submitted total copper sample results taken in the Nashua River just above the treatment plant discharge in 2014, as summarized in Table 1. The results clearly demonstrate very low instream copper concentrations and do not support the permittee's contention that Pepperell's new (lower) copper limits are a result of excessive permitted copper limits upstream.

Table 1 – Ambient Upstream Total Copper
(upstream of Pepperell Discharge)

Test date	Copper µg/L
Sept., 2014	1.1
Sept., 2014	1.2
Sept., 2014	1.1
Nov., 2014	0.7
Nov., 2014	2.1
Nov., 2014	0.8
Ave	1.2
Max	2.1

The increased frequency of total copper sampling in the Final Permit directly addresses the issue of there being only a small number of new sample points on which to base a permit limit. The permittee may conduct and submit additional sampling results beyond those required in the permit, consistent with 40 CFR §122.41(l)(4)(ii).

If the permittee is unable to meet the permit limits, compliance schedules may allow time to determine the extent of the problem. However, since the levels of copper currently being discharged from the Pepperell WWTF are consistently below the new effluent limit, no compliance schedule is currently needed. Review of the discharge monitoring data demonstrates that the new average month copper concentration has consistently been met since November of 2013 and the new maximum daily concentration has not been exceeded since March of 2010. See Table 2.

Comment 3b

The limitation does not take into account the differences between the speciation of the copper compounds when it is discharged, which impacts the biota in dramatically different fashions. This overly conservative approach is contrary to the effluent quality testing conducted at the plant through the Whole Effluent Toxicity (WET) testing. The plant effluent routinely passes this test exceeding the criteria required.

Response to comment 3b

EPA disagrees that the copper effluent is “overly conservative” or that the copper limit should be revised because the facility has been meeting the WET effluent limits in the current permit.

EPA is required to base water quality-based effluent limits on criteria that have been adopted by the state and approved by EPA in accordance with section 303 of the Clean Water Act (40 CFR §122.44(i)) and to limit all metals as total recoverable (40 CFR §122.45(c)). The Massachusetts water quality criteria are established as hardness-dependent dissolved copper which is then translated into total recoverable copper for the purposes of deriving a water quality-based effluent limit.

Table 2 – Summary of Effluent Total Copper

Monitoring Report Date	Total Copper (µg/L)	Monitoring Report Date	Total Copper (µg/L)	Monitoring Report Date	Total Copper (µg/L)
01/31/2010	80.	**02/29/2012**	31.	**03/31/2014**	28.
02/28/2010	80.	**03/31/2012**	30.	**04/30/2014**	23.
03/31/2010	**100.**	**04/30/2012**	10.	**05/31/2014**	13.
04/30/2010	80.	**05/31/2012**	27.	**06/30/2014**	36.
05/31/2010	90.	**06/30/2012**	18.	**07/31/2014**	61.
06/30/2010	60.	**07/31/2012**	16.	**08/31/2014**	50.
07/31/2010	50.	**08/31/2012**	26.	**09/30/2014**	40.
08/31/2010	30.	**09/30/2012**	18.	**10/31/2014**	30.
09/30/2010	20.	**10/31/2012**	19.	**11/30/2014**	17.5
10/31/2010	30.	**11/30/2012**	40.	**12/31/2014**	12.
11/30/2010	12.	**12/31/2012**	26.	**01/31/2015**	9.6
12/31/2010	12.	**01/31/2013**	19.	**02/28/2015**	17.
01/31/2011	12.	**02/28/2013**	40.	**03/31/2015**	19.5
02/28/2011	12.	**03/31/2013**	34.	**04/30/2015**	9.3
03/31/2011	23.	**04/30/2013**	16.	**05/31/2015**	7.4
04/30/2011	12.	**05/31/2013**	21.7	**06/30/2015**	11.4
05/31/2011	N/A	**06/30/2013**	.29	**07/31/2015**	12.
06/30/2011	20.	**07/31/2013**	19.	**08/31/2015**	15.8
07/31/2011	25.	**08/31/2013**	83.	**09/30/2015**	18.7
08/31/2011	26.	**09/30/2013**	32.	**10/31/2015**	3.6
09/30/2011	21.	**10/31/2013**	19.	**11/30/2015**	4.
10/31/2011	60.	**11/30/2013**	67.	**12/31/2015**	6.
11/30/2011	23.	**12/31/2013**	28.	**01/31/2016**	13.1
12/31/2011	19.	**01/31/2014**	36.	**02/29/2016**	24.
01/31/2012	29.	**02/28/2014**	72.	**03/31/2016**	10.3
				04/30/2016	7.9

Whole effluent toxicity tests do not eliminate the need for chemical specific limits. EPA follows the policy of "independent application" when chemical specific limits are required based on reasonable potential analysis, but aquatic life toxicity is not evident in WET testing. Please see the following explanation of this policy from an EPA Advance Notice of Proposed Rulemaking.[5]

> "With the advent of different ways of assessing the health of aquatic systems comes the possibility of conflicting results. To address such conflicts, EPA developed the policy of independent application.

[5] Federal Register: July 7, 1998 (Volume 63, Number 129 Page 36795) - Advance notice of proposed rulemaking.

> Independent application states that where different types of monitoring data are available for assessment of whether a water body is attaining aquatic life uses or for identifying the potential of pollution sources to cause or contribute to non-attainment of aquatic life uses, any one assessment is sufficient to identify an existing or potential impact/impairment, and no one assessment can be used to override a finding of existing or potential impact or impairment based on another assessment.
>
> The independent application policy takes into account that each assessment provides unique insights into the integrity and health of an aquatic system. In addition, each assessment approach has differing strengths and limitations, and assesses different stressors and their effects, or potential effects, on aquatic systems.
>
> For example, while biological assessments can provide information in determining the cumulative effect of past or current impacts from multiple stressors, these assessments may be limited in their ability to predict, and therefore prevent, impacts.
>
> While chemical-specific assessments are useful to evaluate and predict ecosystem impacts from single pollutants, chemical-specific methods are unable to assess the combined interactions of pollutants (e.g., additivity).
>
> Similar to biological assessments, toxicity testing provides a means of evaluating the aggregate toxic effects of pollutants, and like chemical assessments, can also be used when testing effluent to predict single chemical impacts.
>
> One of the limitations of toxicity testing, however, is that the identification of pollutants causing toxicity is not always possible or cost-effective.
>
> Each of these three assessment approaches relies on different kinds of water quality data, measures different endpoints and, in practice, will be interpreted in the context of implementing a water quality management program that includes assessment and pollution control.
>
> EPA's policy on independent application is based on the premise that any valid, representative data indicating an actual or projected water quality impairment must not be ignored when determining the appropriate action to be taken. Independent application recognizes the strengths and limitations of all three assessment approaches."

After numerous public meetings and thousands of comments submitted to EPA, the policy of independent application was retained. The referenced condition in the permit remains unchanged.

Comment 3c

There are a number of facilities located on the River upstream of Pepperell that are allowed to discharge elevated concentrations of copper, due to the type of model used to calculate the water quality criteria for the upstream reaches of the River. For some unknown reason the water quality river model changes resulting in the imposition of unreasonable limits on treatment plants downstream. It is the Town's belief that the relaxation of the limits upstream of the Pepperell

discharge point is directly causing the main stem/lower Nashua River to have high copper concentrations. Thus creating an artificial need to impose unreasonable limits on our discharge. The model used to determine pollutant levels and water quality concentrations should reflect on the entire river and not just static locations along the river. Future limitations issued in permits should be updated to acknowledge this situation and adjust limits accordingly.

Response to comment 3c

EPA's model for calculating metals limits has not changed. However, site specific criteria were adopted in the North Nashua River that are higher (acute 24.7 µg/L and chronic criterion of 17.4 µg/L) than the criteria applicable to Maine Stem Nashua River (acute 5.07 µg/L and chronic 3.76 µg/L). EPA will continue to use the appropriate lower criteria in downstream receiving waters, as required by federal regulations at 40 CFR § 131.10(b) and state water quality standards at 314 CMR 4.03(1)(a).

That said, due to lower available dilution, effluent limits for facilities upstream of the Pepperell impoundment, where the site specific copper criteria apply, are substantially lower (i.e. more restrictive) than Pepperell's as shown in the Table 3 below.

Table 3 – Summary of Copper Effluent Limits for Upstream Dischargers

Facility	Average Monthly Total Copper Limit in µg/L	Maximum Daily Total Copper Limit in µg/L
Fitchburg East WWTF	27	37
Leominster WWTF	12.7	17.8
Clinton (draft permit)	9.5	9.5
Pepperell	65.7	97.5

Levels of copper found naturally in Massachusetts surface waters are generally about 4 µg/L or less[6]. All the ambient concentrations reported in the Pepperell study are within the naturally occurring range and do not indicate a high contribution of copper coming from point sources upstream. There is no change in the copper limit in the final permit.

Comment 3d

The imposition of copper appears inconsistent with the 303 listing for the River, which does not identify metals as needing control.

Response to comment 3d

Where EPA finds reasonable potential (RP) for a pollutant to cause or contribute to an exceedance of state water quality standards as is the case with total copper, EPA is required by 40 Code of Federal Regulations 122.44(d)(ii) to include effluent limits to protect those water quality standards, regardless of whether the receiving water has been listed as impaired. In this

[6] MassDEP Factsheet Copper and Your Health, Page 2 http://www.mass.gov/eea/docs/dep/water/drinking/alpha/a-thru-h/copperfs.pdf

way, the Clean Water Act protects those receiving waters from discharges that would cause impairment if dischargers were to operate at their maximum permitted flow.

The Clean Water Act Section 303(d) list of impaired waters is revised by the state and approved by EPA every 2 years. It is not uncommon for water quality-based effluent limitations to be added to NPDES permits for pollutants and waters not yet listed under Section 303(d) of the Clean Water Act. The final copper limits are not changed as a result of this comment.

Comment 3e

The hardness information used to calculate the limits are not representative of the River under the 7Q10 conditions. Under 7Q10 conditions the River is effluent dominated. The hardness in the discharges from these facilities is significantly higher than that used in the calculation to represent the River water quality at 7Q10. Please see page 11 of the public noticed fact sheet.

Response to comment 3e

EPA is not aware of any ambient hardness samples taken at or near Pepperell during Nashua River specifically during 7Q10 flow conditions. Therefore, hardness was calculated by mass balance using Pepperell's dilution water analysis (from the upstream Pepperell Impoundment) during the period of June 2011 through September of 2013, and effluent sample data from WET testing.

No change has been made to the final permit.

Comment 3g

The flow identified for the dilution ratio at the Pepperell outfall is actually less than the total permitted flows from the all the upstream NPDES permits.

Response to comment 3g

EPA agrees that the flow identified for the dilution ratio at the Pepperell outfall is less than the total permitted flows from all the upstream NPDES permits. This is because State permitted surface water withdrawals exceed the combined effluent contributions of the 6 NPDES permitted facilities as explained below.

> The watershed is unique in providing drinking water to two-thirds of the residents of Massachusetts, through the formation in 1905 of the Wachusett Reservoir on the South Nashua (part of the Massachusetts Water Resource Authority water supply system). This reservoir regulates 115 square miles of the watershed as well as storing water transferred from the Quabbin Reservoir to the west. The Nashua watershed exports 98 million gallons per day of water through this system accounting for 20% of the average annual runoff being transported out of the watershed. Combined with the water withdrawal of 10 mgd by the City of Worcester and 19 mgd from 20 other large community water suppliers, these withdrawals affect water quantity for downstream users, biota, and wastewater disposal. The MDC is required by Massachusetts General Law to release at least 12 million gallons per week (or 1.8 mgd) to the South Nashua River. An

inflow/outflow study conducted by Camp Dresser and McKee (2002) indicated an overall net outflow from the subwatersheds in the basin.[7]

As discussed in Response to comment 1e, EPA reevaluates water quality-based effluent limits with every permit reissuance using current flow data to ensure that water quality is protected in the receiving water. Dilution is calculated at the point where the effluent discharges to the receiving water. The dilution must be based on available river flow regardless of whether it is reduced by anthropogenic or natural changes to hydrologic conditions. There is no change to the final permit based on this comment.

Comment 4

There appears to be some inconsistency in the sampling frequency for effluent and instream copper. We recommend removing the second listing for Total Recoverable Copper and modifying Footnote 13 to reflect the instream sampling requirements only.

Response to comment 4

EPA agrees that the sampling instructions for effluent and instream copper in the draft permit were unclear. Part A.1, has been revised to clarify instream sampling requirements.

The 9 parameters listed in the Table on page 3, beginning with Total Hardness CaCO3, are all taken from the quarterly WET reports, and thus grouped together.

Total copper effluent and ambient samples are required during the low river flow months of June, July, August, and September. The effluent results are limited as found in the table on page 2 of the permit. Included in the WET testing protocol for June and September are also total copper effluent and ambient sample requirements. EPA allows one set of effluent and ambient samples to be used to satisfy the copper requirements for both chemical specific tests (table on Page 2) and WET copper requirements (table on Page 3) for the month of June and September.

Comment 5

Footnote 7 requires that the UV disinfection system include an alarm system for indicating system interruptions or malfunctions. While the system has an extensive control system, we believe that reporting every change in the operation of the system to be unproductive and will not generate information of value to the Permittee or Agency. Any interruption or malfunction in the system will not necessarily yield effluent that is out of compliance with the NPDES permit. Without sampling one cannot verify the actual effluent quality. We will document these as requested, but do not agree that this represents a violation of the permit.

[7] MassDEP, Draft Nashua River, Massachusetts, Total Maximum Daily Load for the Nutrient Phosphorus (Report # 81–TMDL-2007-2) Page 17 http://www.mass.gov/eea/docs/dep/water/resources/n-thru-y/nashua.pdf

Response to comment 5

The purpose of the alarm system is to ensure that immediate action can be taken to minimize periods when disinfection is offline. Reporting when disinfection is not operating to EPA will encourage chronic interruptions to be addressed if such circumstances arise. The referenced condition in the permit remains unchanged.

Comment 6

Part 1.A.1 (b). The pH of the system shall not be less than 6.5 or greater than 8.3 at any time. This requirement should contain a caveat allowing for discharges outside the range if caused by treatment processes.

The current nitrification process at the plant required by the permit (to remove ammonia-nitrogen) results in a reduction in wastewater alkalinity, which suppresses the pH. There are occasions that the effluent from the treatment plant can be lower than 6.5.

Response to comment 6

The permittee identifies the nitrification process to meet the ammonia limit as the cause of the low pH values which largely occur during May through October. There is no provision in the Massachusetts Surface Water Quality Standards for a variance from the pH criteria based on treatment processes. Through chemical addition or other measures it is possible for the treatment plant to meet the limits at the point of discharge.

Pepperell has reported pH values at or above the 6.5 SU values on the 17 most recent monthly Discharge Monitoring Reports. Nitrification does not appear to have caused pH excursions during the previous two summers. Please see Table 4.

Table 4-Summary of Effluent pH

Monitoring Report Date	pH (SU)	Monitoring Report Date	pH (SU)
05/31/2014	6.6	**05/31/2015**	6.6
06/30/2014	**6.35**	**06/30/2015**	6.99
07/31/2014	**6.3**	**07/31/2015**	6.6
08/31/2014	**6.3**	**08/31/2015**	6.65
09/30/2014	**6.**	**09/30/2015**	6.8
10/31/2014	**6.1**	**10/31/2015**	6.7
11/30/2014	**6.**	**11/30/2015**	6.7
12/31/2014	6.5	**12/31/2015**	6.7
01/31/2015	6.65	**01/31/2016**	6.73
02/28/2015	6.75	**02/29/2016**	6.7
03/31/2015	6.6	**03/31/2016**	6.77
04/30/2015	6.65	**04/30/2016**	6.75

Acidification of Massachusetts surface waters is an ongoing concern. The final permit retains pH limitations of 6.5-8.3 standard units which are required by state water quality standards, and are protective of pH standards (6.5 SU - 8.3 SU), set forth at 314 CMR 4.05(b)(3), for Class B waters. The pH limits are not changed in the final permit.

Comment 7

Part C.4. b and c. The permit requires a substantial mapping effort to be undertaken. While the POTW has a thorough inventory of the system, there are no combined sewers in the Pepperell wastewater collection system.

Response to comment 7

Permit Section Part C.4. b., and c. are part of standard language used in all Massachusetts municipal permits. As discussed in the fact sheet, these are consistent with federal requirements for operation and maintenance of the collection systems and similar Massachusetts requirements. Portions of such conditions that do not apply to the Pepperell Wastewater Treatment Plant, such as CSOs, do not require action or response by the permittee.

Comment 8

Part C.5. Collection System Operation and Maintenance Plan. This requirement puts a significant burden on the existing staff and budget. The plan requires the submittal of a comprehensive plan within two years of permit issuance.

This burden does not appear to reconcile with the condition and ongoing maintenance performed by the staff. The treatment plant has routinely been awarded high marks by regulators for its exceeding the expectations regarding facility operation and maintenance.

Additionally the system is new as compared to communities elsewhere in the state. We recommend allowing for an extended time frame to complete part (a) of 18 months and 36-months for the completion of the full plan.

Response to comment 8

All Massachusetts Municipal permits currently being reissued include similar requirements. Most facilities subject to these requirements start by combining existing programs with new elements as needed to satisfy the full report. Parts of Section C5 require reporting of operation and maintenance activities as they will occur in the future. Where Pepperell has been proactive and is exceeding the expectations regarding facility operation and maintenance, much of the groundwork for the Operation and Maintenance plan may already be in place which will simplify preparation and submission of the final plan within 24 months of the effective date of the permit. The referenced condition in the permit remains unchanged.

Comment 9

Part C.7. The requirement for alternative power sources throughout the system exceeds what is required to adequately operate the POTW. While we understand the need to ensure that overflows do not occur in the event of power failure there are other measures that can be

incorporated to meet this requirement including bypass pumping, in situ storage, and hauling. This requirement should be modified to allow the Town to determine the needed back-up plan to meet the intent of this requirement.

Response to comment 9

The requirement for an alternative power source is standard in all Massachusetts Municipal NPDES permits. This requirement recognizes that over time power outages at treatment plants or pump stations are a likely occurrence.

There was a power outage in portions of Pepperell as recently as March of 2014 when a car hit a utility pole, which toppled two more poles knocking out power for hundreds of residents and the police station. No community is exempt from accidents or from severe weather conditions that can interrupt power supplies.

Should the Pepperell WWTP experience a power outage, pumps, treatment units, warning alarms, SCADA, and disinfection will all shut down. Depending on the rate of flow to the treatment plant, hauling and in situ holding offer at best, a short-term respite from a bypass of treatment. This does not satisfy the acceptable bypass conditions found in 40 CFR §122.41(b) which state in part: *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…*

Loss of electrical power at the WWTP means a high likelihood that untreated or partially treated effluent will ultimately reach the Nashua River in violation of permit limits. The permittee is required to take reasonable measures to mitigate such violations.

> 40 CFR §122.41(d) 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.

Proper operation and maintenance is incumbent on the permittee including the operation of *back-up or auxiliary facilities…* (See full text below).

> 40 CFR §122.41(e) Proper operation and maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

EPA maintains that the requirement to have access to auxiliary power to keep the treatment plant operational during a power failure falls within the definition of proper operation and maintenance because auxiliary power is essential to ensure proper operation in the event of loss

of power. Other technologies are not likely to be adequate under all foreseeable circumstances. The referenced condition in the permit remains unchanged.

Comment 10

Please clarify the requirements of the permittee and co-permittee. Also clarify the methods required to submit Items C, D and E.

Response to comment 10

Section E.4 of the permit addresses the submittal of paper reports to the EPA.

C. Collection System Operation and Maintenance Plan (also from co-permittee)
D. Report on annual activities related to O&M Plan (also from co-permittee)
E. Sludge Monitoring Reports

And the new requirement:
F. Compliance Schedule Milestone Reports (Permit Section F)

Items C, D, E and (now) F are to be submitted to EPA/OES at the following address:

U.S. Environmental Protection Agency
Office or Environmental Stewardship (OES)
Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

The Town of Pepperell is required to submit the reports described in Parts C, D, E and (now) F to EPA. The Town of Groton must submit the reports described in Part I.C. Operation and Maintenance of the Sewer System.

Comment 11

Fact Sheet Page 25 of 28 IX. Appears to be a typo regarding the management of sludge at the Pepperell facility. The reference is to the "Ayer WTTF" in the Fact Sheet. Information also does not appear to be related to the Pepperell facility.

Response to comment 11

The reference to Ayer is a typographical error. The July 30, 2010 Permit Reapplication (2S) states that 33.94 dry metric tons of sludge was sent to the Fitchburg Wastewater Treatment Plant and 97.6 dry metric tons of sludge was prepared onsite as compost for land application.

ATTACHMENT A

Table A-1 Upstream Ambient Data from Sample Point NM29A[1]

Sample Date	Total Phosphorus µg/L	Mean Monthly Flow CFS	Sample Date	Total Phosphorus µg/L	Mean Monthly Flow CFS
February 9, 2005	46	782	April 22, 2009	39	966
April 13, 2005	36	1745	June 17, 2009	51	844
June 8, 2005	51	729	September 2, 2009	37	354
June 17, 2005	47	729	October 21, 2009	30	467
October 13, 2005	51	1570	November 18, 2009	25	609
January 11, 2006	30	1354	February 4, 2010	27	901
March 14, 2006	46	500	July 15, 2010	34	229
May 10, 2006	57	1435	September 22, 2010	20	111
July 12, 2006	53	683	November 9, 2010	32	399
September 16, 2006	32	410	March 9, 2011	92	2122
November 1, 2006	43	1335	April 25, 2011	24	1216
February 7, 2007	48	305	June 15, 2011	42	670
April 11, 2007	30	2189	August 24, 2011	32	526
June 1, 2007	51	421	October 19, 2011	29	1249
August 22, 2007	43	225	January 18, 2012	23	880
October 10, 2007	48	186	March 20, 2012	20	783
January 6, 2008	30	538	May 22, 2012	43	679
March 19, 2008	19	1772	July 18, 2012	35	223
May 15, 2008	47	557	September 19, 2012	17	223
June 12, 2008	54	217	November 7, 2012	30	513
July 17, 2008	48	475	March 6, 2013	22	1207
August 14, 2008	44	591	April 17, 2013	18	956
September 18, 2008	39	750	May 22, 2013	50	559
November 12, 2008	40	558	September 24, 2013	21	179

[1] Sample Point NM29A is pproximately ½ mile downstream-East from covered bridge at Groton Street, Pepperell and about ½ mile upstream of the Pepperell WWTP. The Nissitissit River enters the Nashua River after the sample point and before the POTW.

Table A-2 Mine Falls Dam Impoundment Sampling Results[2]

Date	Time	Chlorophyll-a (ug/ml)	Total Phosphorus (mg/L)
07/24/2013	10:05:00	5.48	0.0297
07/31/2013	10:25:00	6.01	
08/14/2013	10:15:00	1.62	0.0316
08/22/2013	06:55:00	4.50	0.0233
08/28/2013	11:45:00	10.51	0.0189
08/30/2013	05:35:00	5.58	0.0245
09/02/2013	10:00:00	15.17	0.0262
09/05/2013	09:00:00	13.56	0.0957
09/09/2013	09:00:00	5.69	0.0423
09/12/2013	10:05:00	13.35	0.0610
09/12/2013	10:05:00	11.30	0.0804
	Max	15.70	0.0957
	Ave.	8.43	0.0434
	Min.	1.62	0.0189

[2] These samples were collected by the dam owner and submitted to NHDES in 2013 to support certification from the Low Impact Hydropower Institute.

Table A-3 Total Phosphorus Data from Route 111 Bridge, Hollis, NH in mg/L[3]

Date	Time	Concentration	Date	Time	Concentration
07/13/1990	10:30	.058	08/22/2002	11:00	.058
08/06/1990	11:30	.077	07/23/2003	11:45	.054
06/18/1991	10:05	.091	07/23/2003	11:45	.055
07/31/1991	10:30	.106	08/22/2003	09:45	.049
08/20/1991	10:40	.175	06/17/2004	10:55	.043
05/22/1992	12:20	.068	07/15/2004	11:23	.065
07/06/1992	11:40	.073	08/12/2004	09:02	.048
08/03/1992	11:40	.073	06/16/2005	10:33	.068
06/03/1993	12:10	.07	07/14/2005	09:30	.059
06/30/1993	10:55	.106	08/11/2005	10:56	.039
05/31/1994	11:10	.078	06/14/2006	11:50	.046
06/27/1994	10:15	.096	07/12/2006	10:03	.044
08/26/1994	10:35	.065	07/12/2006	10:03	.044
06/01/1995	11:15	.075	08/09/2006	09:47	.028
07/10/1995	11:30	.103	08/09/2006	09:47	.029
08/10/1995	12:00	.064	06/21/2007	09:45	.039
06/10/1996	13:40	.084	07/19/2007	09:00	.051
07/11/1996	12:00	.362	08/23/2007	10:40	.026
08/02/1996	11:40	.066	06/19/2008	10:02	.051
06/09/1997		.069	07/17/2008	09:35	.043
07/08/1997	09:15	.097	08/25/2008	08:30	.033
06/12/1998		.132	06/24/2009	09:45	.05
07/08/1998		.097	07/21/2009	09:20	.045
08/18/1998		.155	08/18/2009	08:45	.043
07/07/1999	11:55	.069	06/22/2010	10:05	.038
08/11/1999	10:50	.08	07/20/2010	09:10	.041
06/16/2000	09:45	.063	08/17/2010	09:20	.023
07/11/2000	09:30	.073	06/21/2011	09:15	.036
08/01/2000	09:55	.09	06/21/2011	09:15	.036
06/08/2001	10:55	.057	07/19/2011	10:50	.017
07/10/2001	09:13	.065	08/23/2011	10:15	.03
08/14/2001	08:57	.079	06/19/2012	09:15	.039
06/20/2002	08:40	.049	07/24/2012	10:10	.028
07/19/2002	10:55	.06	08/21/2012	10:10	.025
				Max	0.362
				Ave.	0.067
				Min.	0.017

[3] Data collected by the New Hampshire Department of Environmental Services' Volunteer River Assessment Program Between July 1990 and August, 2016