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),

City of Easthampton
Board of Public Works

is authorized to discharge from the facility located at

Easthampton Wastewater Treatment Facility
10 Gosselin Drive
Easthampton, MA 01027

to receiving waters named

Connecticut River and Manhan River

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

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

This permit and the authorization to discharge expire at midnight, five (5) years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on September 29, 2007.

This permit consists of **Part I** (19 pages including effluent limitations and monitoring requirements); **Attachment A** (USEPA Region 1 Freshwater Acute Toxicity Test Procedure and Protocol, February 2011, 8 pages); **Attachment B** (Procedures for a pH Adjustment Demonstration Project, 3 pages); **Attachment C** (USEPA Region 1 Reassessment of Technically Based Industrial Discharge Limits, 9 pages); **Attachment D** (USEPA Region 1 NPDES Permit Requirement for Industrial Pretreatment Annual Report, 2 pages) and **Part II (**25 pages including NPDES Part II Standard Conditions).

Signed this 13th day of August, 2013

/S/ SIGNATURE ON FILE

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

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

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS [4]**	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE[6]**
FLOW: sum Outfalls 001 and 002[2]	*********	*********	3.8 mgd	*********	Report mgd	CONTINUOUS	RECORDER
FLOW: sum Outfalls 001 and 002[2]	*********	*********	Report mgd	*********	*********	CONTINUOUS	RECORDER
FLOW: Outfall 001[3]	*********	*********	Report mgd	*********	Report mgd	CONTINUOUS	RECORDER
BOD_5 [5]	951 lb/day[5]	1426 lb/day[5]	30 mg/l	45 mg/l	Report mg/l	2/WEEK	24-HOUR COMPOSITE
TSS [5]	951 lb/day[5]	1426 lb/day[5]	30 mg/l	45 mg/l	Report mg/l	2/WEEK	24-HOUR COMPOSITE
pH RANGE[1]	6.0 - 8.3 S.U. (SEE PERMIT PARAGRAPH I.A.1.b.)					1/DAY	GRAB
ESCHERICHIA COLI [1,7] (E. coli) *(April 1 to October 31)*	*********	**********	126 cfu/100 ml	*********	409 cfu/100 ml	2/WEEK	GRAB
TOTAL RESIDUAL CHLORINE[1,7] *(April 1 to October 31)*	*********	**********	1.0 mg/l	*********	1.0 mg/l	1/DAY	GRAB
TOTAL RECOVERABLE ALUMINUM	*********	*********	0.087 mg/l	*********	*********	1/MONTH	24-HOUR COMPOSITE

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

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS [4]	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE[6]**
TOTAL NITROGEN[8]	Report lb/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE
AMMONIA-NITROGEN[8]	Report lb/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE
TOTAL KJELDAHL NITROGEN[8]	Report lb/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE
TOTAL NITRATE[8]	Report lb/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE
TOTAL NITRITE[8]	Report lb/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE
TOTAL PHOSPHORUS	Report lb/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE
WHOLE EFFLUENT TOXICITY [9, 10, 11]	Acute $LC_{50} \geq 50\%$					2/YEAR	24-HOUR COMPOSITE
Hardness[12]	*********	*********	*********	*********	Report mg/l	2/YEAR	24-HR COMP
Total Recoverable Cadmium[12]	*********	*********	*********	*********	Report mg/l	2/YEAR	24-HR COMP
Total Recoverable Copper[12]	*********	*********	*********	*********	Report mg/l	2/YEAR	24-HR COMP
Total Recoverable Nickel[12]	*********	*********	*********	*********	Report mg/l	2/YEAR	24-HR COMP
Total Recoverable Lead[12]	*********	*********	*********	*********	Report mg/l	2/YEAR	24-HR COMP
Total Recoverable Zinc[12]	*********	*********	*********	*********	Report mg/l	2/YEAR	24-HR COMP

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 **002** to Manhan River. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS [4]**	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE[6]**
FLOW: Outfall 002[3]	*********	*********	Report mgd	*********	Report mgd	CONTINUOUS	RECORDER
BOD_5 [5]	*********	*********	30 mg/l	45 mg/l	Report mg/l	2/WEEK	24-HOUR COMPOSITE
TSS [5]	*********	*********	30 mg/l	45 mg/l	Report mg/l	2/WEEK	24-HOUR COMPOSITE
pH RANGE[1]	6.5 - 8.3 S.U. (SEE PERMIT PARAGRAPH I.A.1.b.)					1/DAY	GRAB
ESCHERICHIA COLI [1,7] *(April 1 to November 30)*	*********	**********	126 cfu/100 ml	*********	409 cfu/100 ml	2/WEEK	GRAB
TOTAL RESIDUAL CHLORINE[1,7] *(April 1 to November 30)*	*********	**********	1.0 mg/l	*********	1.0 mg/l	1/DAY	GRAB
TOTAL RECOVERABLE ALUMINUM	*********	*********	*********	*********	Report mg/l	1/QUARTER	24-HOUR COMPOSITE

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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 **002** to Manhan River. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS [4]	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE[6]**
TOTAL NITROGEN[8]	Report lb/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE
AMMONIA-NITROGEN[8]	Report lb/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE
TOTAL KJELDAHL NITROGEN[8]	Report lb/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE
TOTAL NITRATE[8]	Report lb/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE
TOTAL NITRITE[8]	Report lb/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE
TOTAL PHOSPHORUS (April 1-October 31)	Report lb/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE
WHOLE EFFLUENT TOXICITY [9, 10, 11]	Acute $LC_{50} \geq 100\%$					2/YEAR	24-HOUR COMPOSITE
Hardness[12]	*********	*********	*********	*********	Report mg/l	2/YEAR	24-HR COMP
Total Recoverable Cadmium[12]	*********	*********	*********	*********	Report mg/l	2/YEAR	24-HR COMP
Total Recoverable Copper[12]	*********	*********	*********	*********	Report mg/l	2/YEAR	24-HR COMP
Total Recoverable Lead[12]	*********	*********	*********	*********	Report mg/l	2/YEAR	24-HR COMP
Total Recoverable Nickel[12]	*********	*********	*********	*********	Report mg/l	2/YEAR	24-HR COMP
Total Recoverable Zinc[12]	*********	*********	*********	*********	Report mg/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.

3. Outfall 001: Report monthly average and maximum daily flow on the discharge monitoring report (DMR). Attach a report to each monthly DMR which includes the total daily flow, maximum daily flow rate, and minimum daily flow rates for each day.

   Outfall 002: Report monthly average flow (total monthly discharge divided by days of discharge) and maximum daily flow on discharge monitoring report (DMR). Attach a report to each monthly DMR which includes the duration of discharge, total daily discharge and maximum flow rate for each day that the discharge is active.

   The facility is required to maximize flow through Outfall 001. This requirement is to ensure that the dilution attributed to Outfall 002, which is based on the normal operation of the facility since May of 2010 rather than the 7Q10 of the Manhan River, is protective under all flow conditions.

4. Effluent sampling shall be of the discharge and any change in sampling location must be reviewed and approved in writing by EPA and MassDEP.

   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.

5. Sampling required for influent and effluent.

   The mass limits for BOD_5 and TSS are the total allowable mass discharge from both Outfall 001 and 002. The monthly average mass discharge shall be calculated using the monthly average flow from the effluent flow meter and the monthly average concentration. The daily discharge shall be calculated for each day a sample is taken using the concentration from the sample and the total daily flow on that day as measured at the effluent flow meter. The day with the greatest mass discharge shall be reported as the maximum daily discharge. The combined BOD_5 and TSS mass discharges shall be reported on a separate DMR.

6. 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.

7. The monthly average limit for *E. coli* is expressed as a geometric mean. *E. coli* monitoring shall be conducted concurrently with a total residual chlorine sample.

   Total residual chlorine monitoring is required whenever chlorine is added to the treatment process (i.e. TRC sampling is not required if chlorine is not added for disinfection or other purpose). The limitations are in effect year-round.

   The minimum level (ML) for total residual chlorine is defined as 20 ug/l. This value is the minimum level for chlorine using EPA-approved methods found in the most currently approved version of Standard Methods for the Examination of Water and Wastewater, Method 4500 CL-E and G. One of these methods must be used to determine total residual chlorine. For effluent limitations less than 20 ug/l, compliance/non-compliance will be determined based on the ML. Sample results of 20 ug/l or less shall be reported as zero on the discharge monitoring report.

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

8. See Part I.F for requirements to evaluate and implement optimization of nitrogen removal.

9. The permittee shall conduct acute toxicity tests for Outfall 001 two times per year. The permittee shall test the daphnid, *Ceriodaphnia dubia*, only. Toxicity test samples shall be collected during the second week of June and September. Results are to be submitted by the last day of the month after the sample, *i.e.*, July 31 and October 31.

   The permittee shall conduct acute toxicity tests for Outfall 002 two times per year. The permittee shall test the daphnid, *Ceriodaphnia dubia*, only. Toxicity test samples shall be collected during the second week of March and December. Results are to be submitted by the last day of the month after the sample, *i.e.*, April 30 and January 31. If Outfall 002 is not active during either of those two weeks, then toxicity testing should be done on the first day that discharge does occur following those weeks. If the discharge is not active for the remainder of the months of March or December, no toxicity test is required for that quarter.

   The tests must be performed in accordance with test procedures and protocols specified

in **Attachment A** of this permit.

After submitting one year and a minimum of four consecutive sets of WET test results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction in the WET testing requirements. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the WET testing requirement has been changed.

10. The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 50% limit means that a sample of 50% effluent shall cause no more than a 50% mortality rate, as applied to Outfall 001. A 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate, as applied to Outfall 002.

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 and other listed metals found in the 100 percent effluent sample. All 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.

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 from Outfall 001 shall not be less than 6.0 S.U. or greater than 8.3 S.U. at any time and the pH from Outfall 002 shall not be less than 6.5 S.U. or greater than 8.3 S.U. If the permittee submits a written request for an adjustment of the pH range for Outfall 002, the permittee must conduct a pH adjustment demonstration project following the procedures in **Attachment B** of this permit.

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 permittee shall minimize the use of chlorine while maintaining adequate bacterial control.

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

h. If the average annual flow in any calendar year exceeds 80 percent of the facility's design flow, the permittee shall submit a report to MassDEP by March 31 of the following calendar year describing its plans for further flow increases and describing how it will maintain compliance with the flow limit and all other effluent limitations and conditions.

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 or may be 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 or MassDEP 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 to EPA and MassDEP in accordance with Section D.1.e.(1) of the General Requirements of this permit (Twenty-four hour reporting).

Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes DEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at http://www.mass.gov/dep/water/approvals/surffms.htm#sso.

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 is required to complete the following activities for the collection system which it owns:

1. Maintenance Staff

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

2. Preventive Maintenance Program

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

3. Infiltration/Inflow

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

4. Collection System Mapping

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

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

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

5. Collection System Operation and Maintenance Plan

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

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

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

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

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

(8) An Overflow Emergency Response Plan to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the permit.

6. Annual Reporting Requirement

The permittee shall submit a summary report of activities related to the implementation of its Collection System O & M Plan during the previous calendar year. The report shall be submitted to EPA and MassDEP annually by March 31. The summary report shall, at a minimum, include:

a. A description of the staffing levels maintained during the year;
b. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year;
c. Expenditures for any collection system maintenance activities and corrective actions taken during the previous year;
d. A map with areas identified for investigation/action in the coming year;
e. If treatment plant flow has reached 80% of its design flow (*i.e.*, 3.04 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 shall provide an alternative power source(s) sufficient to operate the portion of the publicly owned treatment works[1] 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.

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

a. Land application - the use of sewage sludge to condition or fertilize the soil

b. Surface disposal - the placement of sewage sludge in a sludge only landfill

c. Sewage sludge incineration in a sludge only incinerator

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

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

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

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

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

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

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

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

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

1. The permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW Treatment Plant's Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. Within (120 days of the effective date of this permit), the permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. As part of this evaluation, the permittee shall assess how the POTW performs with respect to influent and effluent of pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the permittee shall complete and submit the attached form (see **Attachment C –** Reassessment of Technically Based Industrial Discharge Limits) with the technical evaluation to assist in determining whether existing local limits need to be revised. Justifications and conclusions should be based on actual plant data if available and should be included in the report. Should the evaluation reveal the need to revise local limits, the permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval. The

Permittee shall carry out the local limits revisions in accordance with EPA's Local Limit Development Guidance (July 2004).

2. The permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 CFR 403. At a minimum, the permittee must perform the following duties to properly implement the Industrial Pretreatment Program (IPP):

    a. Carry out inspection, surveillance, and monitoring procedures which will determine independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and maintain adequate records.

    b. Issue or renew all necessary industrial user control mechanisms within 90 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.

    c. Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement.

    d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.

3. The permittee shall provide the EPA and MassDEP with an annual report describing the permittee's pretreatment program activities for the twelve (12) month period ending 60 days prior to the due date in accordance with 403.12(i). The annual report shall be consistent with the format described in **Attachment D** (NPDES Permit Requirement for Industrial Pretreatment Annual Report) of this permit and shall be submitted no later than **November 1** of each year.

4. The permittee must obtain approval from EPA prior to making any significant changes to the industrial pretreatment program in accordance with 40 CFR 403.18(c).

5. The permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 CFR 405 et. seq.

6. The permittee must modify its pretreatment program, if necessary, to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program. The permittee must provide EPA, in writing, within 180 days of this permit's effective date proposed changes, if applicable, to the permittee's pretreatment program deemed necessary to assure conformity with current Federal Regulations. At a minimum, the permittee must address in its written submission the following areas: (1) Enforcement response plan; (2) revised sewer use ordinances; and (3)

slug control evaluations. The permittee will implement these proposed changes pending EPA Region I's approval under 40 CFR 403.18. This submission is separate and distinct from any local limits analysis submission described in Part I.E.1.

F. SPECIAL CONDITIONS

In the 2007 permit, the facility was required to complete an evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen and submit a report to EPA and MassDEP documenting this evaluation and presenting a description of recommended operational changes. This report was completed and submitted to EPA and MassDEP in 2008. The permittee shall update, if necessary, its evaluation of alternative methods of operating the existing water pollution control facility to optimize the removal of nitrogen, and maintain a copy of the report to be available to EPA and MassDEP upon request. The methods to be evaluated include, but are not limited to, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. The permittee shall implement the recommended operational changes in order to maintain the mass discharge of total nitrogen less than the existing annual discharge load. The existing mass loading of **304.6 lb/day** is based on the maximum measured annual average load (2011) during the previous permit cycle (2008-2012).

The permittee shall also submit an annual report to EPA and MassDEP, by **April 1** each year, that summarizes activities related to optimizing nitrogen removal efficiencies, documents the annual nitrogen discharge load from the facility, and tracks trends relative to the previous year.

G. MONITORING AND REPORTING

1. **For a period of one year from the effective date of the permit**, the permittee may either submit monitoring data and other reports to EPA in hard copy form or report electronically using NetDMR, a web-based tool that allows permittees to electronically submit discharge monitoring reports (DMRs) and other required reports via a secure internet connection. **Beginning no later than one year after the effective date of the permit**, the permittee shall begin reporting using NetDMR, unless the facility is able to demonstrate a reasonable basis that precludes the use of NetDMR for submitting DMRs and reports. Specific requirements regarding submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

   a. Submittal of Reports Using NetDMR

      NetDMR is accessed from: http://www.epa.gov/netdmr. **Within one year of the effective date of this permit**, the permittee shall begin submitting DMRs and reports required under this permit electronically to EPA using NetDMR, unless the facility is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports ("opt-out request").

      DMRs shall be submitted electronically to EPA 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, including the MassDEP Monthly Operations and Maintenance Report, as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees shall continue to send hard copies of reports other than DMRs (including Monthly Operation and Maintenance Reports) to MassDEP until further notice from MassDEP.

b. Submittal of NetDMR Opt-Out Requests

Opt-out requests must be submitted in writing to EPA for written approval at least sixty (60) days prior to the date a facility would be required under this permit to begin using NetDMR. This demonstration shall be valid for twelve (12) months from the date of EPA approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to EPA unless the permittee submits a renewed opt-out request and such request be approved by EPA. All opt-out requests should be sent to the following addresses:

Attn: NetDMR Coordinator
U.S. Environmental Protection Agency, Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

And

Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

c. Submittal of Reports in Hard Copy Form

Monitoring results shall be summarized for each calendar month and reported on separate hard copy Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed reporting period. All reports required under this permit, including MassDEP Monthly Operation and Maintenance Reports, shall be submitted as an attachment to the DMRs. Signed and dated originals of the DMRs, and all other reports or notifications required herein or in Part II shall be submitted to the Director at the following address:

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

Duplicate signed copies of all reports or notifications required above shall be

submitted to the State at the following addresses:

MassDEP – Western Region
Bureau of Resource Protection (Municipal)
436 Dwight Street, Suite 402
Springfield, MA 01103

Copies of toxicity tests and nitrogen optimization reports only to:

Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

Any verbal reports, if required in **Parts I** and/or **II** of this permit, shall be made to both EPA-New England and to MassDEP.

H. STATE PERMIT CONDITIONS

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

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

3. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as a NPDES Permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of federal law, this permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.

USEPA REGION 1 FRESHWATER ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

http://water.epa.gov/scitech/swguidance/methods/wet/index.cfm#methods

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

III. SAMPLE COLLECTION

A discharge 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/enforcementandassistance/dmr.html for further important details on alternate dilution water substitution requests.

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

V. TEST CONDITIONS

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

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

1.	Test type	Static, non-renewal
2.	Temperature (^{o}C)	20 $\pm$ 1^{o} C or 25 $\pm$ 1^{o}C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hour light, 8 hour dark
5.	Test chamber size	Minimum 30 ml
6.	Test solution volume	Minimum 15 ml
7.	Age of test organisms	1-24 hours (neonates)
8.	No. of daphnids per test chamber	5
9.	No. of replicate test chambers per treatment	4
10.	Total no. daphnids per test concentration	20
11.	Feeding regime	As per manual, lightly feed YCT and Selenastrum to newly released organisms while holding prior to initiating test
12.	Aeration	None
13.	Dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^{R} or equivalent deionized water and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	$\geq$ 0.5, must bracket the permitted RWC

15.	Number of dilutions[3]	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 ~~the~~ others~~~~
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[3]	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[4]	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.

Procedures for a pH Adjustment Demonstration Project

This document describes the procedures to be undertaken by any permittee requesting an adjustment of the pH limits in their NPDES permit. These limits may be adjusted as long as the pH of the effluent remains between 6.0-9.0 (standard units) and the pH of the receiving water remains between 6.5-8.0 or as naturally occurs. Please note that a pH limits adjustment is valid only for the duration of the existing NPDES permit. A subsequent pH limits adjustment demonstration project can be conducted and submitted with a NPDES permit reapplication or anytime thereafter.

Freshwater
For discharges to fresh water receiving waters each demonstration project must be conducted twice over the period of a year, once during the spring months (between March and April when receiving water flows are high) and once during the summer months (between July and August when receiving water flows are low).

Marine Waters
For discharges to marine /estuarine receiving waters the demonstration project must be completed only once during a 1% occurrence spring tide, which is a tide with a maximum range of depths between the high and low tides.

- When the requested pH limit is low (down to 6.0) the study must be conducted when runoff conditions are the greatest (during March/April or October /November) and during the last 2 hours of ebb tide (just before slack low tide).
- When the requested pH limit is high (up to 9.0) the study must be conducted when runoff conditions are lowest (during July and August) and during the last 2 hours of flood tide (just prior to slack high tide.)

The project calls for use of grab and composite samples of the effluent, and grab samples of the receiving water. The procedure is as follows:

1. Calibrate the pH meter using two-point calibration (per the manufacturer's procedure) and verify the calibration using a pH standard close to either pH 6.0 or pH 9.0 (depending on whether you are conducting the pH demonstration project to lower permit limit to pH 6.0 or raise the permit limit to pH 9.0) Record the results on a lab bench sheet. Also record on the lab bench sheet all sampling dates and times, the name of the sampler(s), the name of the analyst(s), and the start and end times for each analysis.

2. Collect a grab and a 24-hour composite sample of the effluent and a grab sample of the receiving water (up gradient of the outfall location). Five liter sample bottles typically suffice. Facilities with secondary treatment by sand filtration or lagoons need not collect a 24-hour composite sample of the effluent because of the relative uniformity of effluent quality.

3. Record the collection date and time for each sample. Work as rapidly as possible to minimize sample holding time.

4. Measure the pH of all samples (effluent grab sample, effluent composite sample, if needed and receiving water grab sample) using the method described in Standard Methods, 18th, 19th, or 20th Edition (or a method allowed in 40 CFR 136), and record the pH of samples on the attached form. The samples must be stirred, but the rate of stirring should minimize the air transfer rate at the air water interface of the sample.

5. Adjust the pH of the effluent sample(s) (either the effleuent grab sample or both the grab and composite effluent samples) to either a pH of 6.0 or 9.0 depending on whether you are seeking to adjust the pH to 6.0 or 9.0. The pH of a sample can be adjusted with either sulfuric acid or sodium hydroxide of such strength that the quantity of reagent does not dilute the sample by more than 0.5%.

6. Taking precautions to minimize sample agitation, mix the receiving water and effluent samples in four separate (glass) containers in the following proportions:
   a. 1 @ the facility's dilution factor
   b. 1 @ 20% above the facility's dilution factor (1.2 x dilution factor)
   c. 1 @ 20% below the facility's dilution factor (0.8 x dilution factor)
   d. 1 @ 40% below the facility's dilution factor (0.6 x dilution factor)

For example, if the facility's dilution factor is 100:1, then the four dilution factors used for the study would be as follows: 100:1, 120:1, 80:1 and 60:1. The volume of each effluent/receiving water mixture should be no less than 500 ml to provide adequate volume for proper mixing and measurement of pH. To calculate the volume of effluent needed to prepare each of the four mixtures, divide the total mixture volume (500 ml) by the dilution factor/ For example, for a dilution factor of 100, divide 500 ml by 100 to calculate the effluent volume that will be needed (5 ml). The 5 ml of effluent should then be diluted (using receiving water) to 500 ml to prepare a mixture representative of the 100:1 dilution factor. The following effluent and receiving water volumes would be combined to prepare each of the four mixtures in the above example:

Dilution Factor	Effluent Volume (ml)	Receiving Water Volume (ml)	Combined Volume (ml)
60	8.33	491.67	500
80	6.25	493.75	500
100	5.0	495.0	500
120	4.17	495.83	500

7. Measure the pH of each mixture per Standard Methods, 18th, 19th or 20th Edition (or a method allowed in 40 CFR 136) and record the information on the attached form.

8. Recheck the calibration of the pH meter by measuring the pH of a standard (again, either pH 6.0 or pH 9.0) and record the information on the lab bench sheet.

9. For discharges to fresh water receiving waters, repeat Steps 1-8 for samples collected during the second season.

10. Submit a report with a copy (or copies) of the attached form (one for each sampling date) and the lab bench sheets to EPA and MassDEP. The report must include a narrative justification for adjusting the pH range and an interpretation/ conclusion about the data.

Attachment B

Date:	Start Time:	End Time:
pH of Receiving Water Grab Sample		(1)
pH of Effluent Grab Sample		(2)
pH of Effluent Composite Sample		(3)

	Effluent Grab Sample	Effluent Composite Sample
pH (after pH adjustment)	(4)	(5)

Serial Dilution		Volume of pH Adjusted Effluent (ml)	Volume of Receiving Water (ml)	Resultant pH Data	
				Effluent Grab/Receiving Water Mixture	Effluent Composite/Receiving Water Mixture
D1: 40% below actual dilution factor	(6)	(10)	(14)	(18)	(22)
D2: 20% below actual design dilution factor	(7)	(11)	(15)	(19)	(23)
D3: at actual design dilution factor	(8)	(12)	(16)	(20)	(24)
D4: 20% above actual design dilution factor	(9)	(13)	(17)	(21)	(25)

(1)Record the pH of a representative upstream receiving water grab sample; for marine waters also note salinity
(2)Record the pH of a representative effluent grab sample
(3)Record the pH of a representative effluent composite sample
(4)Record the pH of the representative effluent grab sample after pH adjustment (should be either pH 6.0 or 9.0)
(5)Record the pH of the representative effluent composite sample after pH adjustment (should be either 6.0 or 9.0)
(6)–(9) Record the four dilutions, and note the volumes used to make up the dilutions (10)-(17); record the resultant pH of each mixture (18)-(25).

Notes/Comments:_____
_____
_____
_____

EPA - New England

Reassessment of Technically Based Industrial Discharge Limits

Under 40 CFR §122.21(j)(4), all Publicly Owned Treatment Works (POTWs) with approved Industrial Pretreatment Programs (IPPs) shall provide the following information to the Director: a written evaluation of the need to revise local industrial discharge limits under 40 CFR §403.5(c)(1).

Below is a form designed by the U.S. Environmental Protection Agency (EPA - New England) to assist POTWs with approved IPPs in evaluating whether their existing Technically Based Local Limits (TBLLs) need to be recalculated. The form allows the permittee and EPA to evaluate and compare pertinent information used in previous TBLLs calculations against present conditions at the POTW.

Please read direction below before filling out form.

ITEM I.

* In Column (1), list what your POTW's influent flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present influent flow rate. Your current flow rate should be calculated using the POTW's average daily flow rate from the previous 12 months.

* In Column (1) list what your POTW's SIU flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present SIU flow rate.

* In Column (1), list what dilution ratio and/or 7Q10 value was used in your old/expired NPDES permit. In Column (2), list what dilution ration and/or 7Q10 value is presently being used in your new/reissued NPDES permit.

  The 7Q10 value is the lowest seven day average flow rate, in the river, over a ten year period. The 7Q10 value and/or dilution ratio used by EPA in your new NPDES permit can be found in your NPDES permit "Fact Sheet."

* In Column (1), list the safety factor, if any, that was used when your existing TBLLs were calculated.

* In Column (1), note how your bio-solids were managed when your existing TBLLs were calculated. In Column (2), note how your POTW is presently disposing of its biosolids and how your POTW will be disposing of its biosolids in the future.

ITEM II.

* List what your existing TBLLs are - as they appear in your current Sewer Use Ordinance (SUO).

ITEM III.

* Identify how your existing TBLLs are allocated out to your industrial community. Some pollutants may be allocated differently than others, if so please explain.

ITEM IV.

* Since your existing TBLLs were calculated, identify the following in detail:

  (1) if your POTW has experienced any upsets, inhibition, interference or pass-through as a result of an industrial discharge.

  (2) if your POTW is presently violating any of its current NPDES permit limitations - include toxicity.

ITEM V.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in pounds per day) received in the POTW's influent. Current sampling data is defined as data obtained over the last 24 month period.

  All influent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* Based on your existing TBLLs, as presented in Item II., list in Column (2), for each pollutant the Maximum Allowable Headwork Loading (MAHL) values derived from an applicable environmental criteria or standard, e.g. water quality, sludge, NPDES, inhibition, etc. For more information, please see EPA's Local Limit Guidance Document (July 2004).

Item VI.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in micrograms per liter) present your POTW's effluent. Current sampling data is defined as data obtained during the last 24 month period.

(Item VI. continued)

All effluent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* List in Column (2A) what the Water Quality Standards (WQS) were (in micrograms per liter) when your TBLLs were calculated, please note what hardness value was used at that time. Hardness should be expressed in milligram per liter of Calcium Carbonate.

  List in Column (2B) the current WQSs or "Chronic Gold Book" values for each pollutant multiplied by the dilution ratio used in your new/reissued NPDES permit. For example, with a dilution ratio of 25:1 at a hardness of 25 mg/l - Calcium Carbonate (copper's chronic WQS equals 6.54 ug/l) the chronic NPDES permit limit for copper would equal 156.25 ug/l.

ITEM VII.

* In Column (1), list all pollutants (in micrograms per liter) limited in your new/reissued NPDES permit. In Column (2), list all pollutants limited in your old/expired NPDES permit.

ITEM VIII.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants in your POTW's biosolids. Current data is defined as data obtained during the last 24 month period. Results are to be expressed as total dry weight.

  All biosolids data collected and analyzed must be in accordance with 40 CFR §136.

  In Column (2A), list current State and/or Federal sludge standards that your facility's biosolids must comply with. Also note how your POTW currently manages the disposal of its biosolids. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria will be and method of disposal.

In general, please be sure the units reported are correct and all pertinent information is included in your evaluation. If you have any questions, please contact your pretreatment representative at EPA - New England.

REASSESSMENT OF TECHNICALLY BASED LOCAL LIMITS (TBLLs)

POTW Name & Address : _____

NPDES PERMIT # :
_____

Date EPA approved current TBLLs : _____

Date EPA approved current Sewer Use Ordinance :
_____

ITEM I.

In Column (1) list the conditions that existed when your current TBLLs were calculated. In Column (2), list current conditions or expected conditions at your POTW.		
	Column (1) EXISTING TBLLs	Column (2) PRESENT CONDITIONS
POTW Flow (MGD)		
Dilution Ratio or 7Q10 (from NPDES Permit)		
SIU Flow (MGD)		
Safety Factor		N/A
Biosolids Disposal Method(s)		

ITEM II.

EXISTING TBLLs			
POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)	POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)

ITEM III.

Note how your existing TBLLs, listed in Item II., are allocated to your Significant Industrial Users (SIUs), i.e. uniform concentration, contributory flow, mass proportioning, other. Please specify by circling.

ITEM IV.

Has your POTW experienced any upsets, inhibition, interference or pass-through from industrial sources since your existing TBLLs were calculated?
If yes, explain.

_____

_____

Has your POTW violated any of its NPDES permit limits and/or toxicity test requirements?

If yes, explain.

_____

_____

ITEM V.

Using current POTW influent sampling data fill in Column (1). In Column (2), list your Maximum Allowable Headwork Loading (MAHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAHL value was established, i.e. water quality, sludge, NPDES etc.				
Pollutant	Column (1) Influent Data Analyses Maximum (lb/day)	Average (lb/day)	Column (2) MAHL Values (lb/day)	Criteria
Arsenic				
Cadmium				
Chromium				
Copper				
Cyanide				
Lead				
Mercury				
Nickel				
Silver				
Zinc				
Other (List)				

ITEM VI.

Using current POTW effluent sampling data, fill in Column (1). In Column (2A) list what the Water Quality Standards (Gold Book Criteria) were at the time your existing TBLLs were developed. List in Column (2B) current Gold Book values multiplied by the dilution ratio used in your new/reissued NPDES permit.

Pollutant	Column (1) Effluent Data Analyses		Columns (2A) (2B) Water Quality Criteria (Gold Book) From TBLLs Today	
	Maximum (ug/l)	Average (ug/l)	(ug/l)	(ug/l)
Arsenic				
*Cadmium				
*Chromium				
*Copper				
Cyanide				
*Lead				
Mercury				
*Nickel				
Silver				
*Zinc				
Other (List)				

*Hardness Dependent (mg/l - CaCO3)

ITEM VII.

In Column (1), identify all pollutants limited in your new/reissued NPDES permit. In Column (2), identify all pollutants that were limited in your old/expired NPDES permit.			
Column (1) NEW PERMIT Pollutants Limitations (ug/l)		Column (2) OLD PERMIT Pollutants (ug/l)	Limitations

ITEM VIII.

Using current POTW biosolids data, fill in Column (1). In Column (2A), list the biosolids criteria that was used at the time your existing TBLLs were calculated. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria would be and method of disposal.

Pollutant	Column (1) Biosolids Data Analyses Average (mg/kg)	Columns (2A) (2B) Biosolids Criteria From TBLLs New (mg/kg)	(mg/kg)
Arsenic			
Cadmium			
Chromium			
Copper			
Cyanide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Molybdenum			
Selenium			
Other (List)			

NPDES PERMIT REQUIREMENT
FOR
INDUSTRIAL PRETREATMENT ANNUAL REPORT

The information described below shall be included in the pretreatment program annual reports:

1. An updated list of all industrial users by category, as set forth in 40 C.F.R. 403.8(f)(2)(i), indicating compliance or noncompliance with the following:
   - baseline monitoring reporting requirements for newly promulgated industries
   - compliance status reporting requirements for newly promulgated industries
   - periodic (semi-annual) monitoring reporting requirements,
   - categorical standards, and
   - local limits;

2. A summary of compliance and enforcement activities during the preceding year, including the number of:
   - significant industrial users inspected by POTW (include inspection dates for each industrial user),
   - significant industrial users sampled by POTW (include sampling dates for each industrial user),
   - compliance schedules issued (include list of subject users),
   - written notices of violations issued (include list of subject users),
   - administrative orders issued (include list of subject users),
   - criminal or civil suits filed (include list of subject users) and,
   - penalties obtained (include list of subject users and penalty amounts);

3. A list of significantly violating industries required to be published in a local newspaper in accordance with 40 C.F.R. 403.8(f)(2)(vii);

4. A narrative description of program effectiveness including present and proposed changes to the program, such as funding, staffing, ordinances, regulations, rules and/or statutory authority;

5. A summary of all pollutant analytical results for influent, effluent, sludge and any toxicity or bioassay data from the wastewater treatment facility. The summary shall include a comparison of influent sampling results versus threshold inhibitory concentrations for the Wastewater Treatment System and effluent sampling results versus water quality standards. Such a comparison shall be based on the sampling program described in the paragraph below or any similar sampling program described in this Permit.

At a minimum, annual sampling and analysis of the influent and effluent of the Wastewater Treatment Plant shall be conducted for the following pollutants:

a.) Total Cadmium	f.) Total Nickel
b.) Total Chromium	g.) Total Silver
c.) Total Copper	h.) Total Zinc
d.) Total Lead	i.) Total Cyanide
e.) Total Mercury	j.) Total Arsenic

The sampling program shall consist of one 24-hour flow-proportioned composite and at least one grab sample that is representative of the flows received by the POTW. The composite shall consist of hourly flow-proportioned grab samples taken over a 24-hour period if the sample is collected manually or shall consist of a minimum of 48 samples collected at 30 minute intervals if an automated sampler is used. Cyanide shall be taken as a grab sample during the same period as the composite sample. Sampling and preservation shall be consistent with 40 CFR Part 136.

6. A detailed description of all interference and pass-through that occurred during the past year;

7. A thorough description of all investigations into interference and pass-through during the past year;

8. A description of monitoring, sewer inspections and evaluations which were done during the past year to detect interference and pass-through, specifying parameters and frequencies;

9. A description of actions being taken to reduce the incidence of significant violations by significant industrial users; and,

10. The date of the latest adoption of local limits and an indication as to whether or not the permittee is under a State or Federal compliance schedule that includes steps to be taken to revise local limits.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

TABLE OF CONTENTS

PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

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

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

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

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

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

2. Permit Actions

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

3. Duty to Provide Information

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

4. Reopener Clause

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

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

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

5. Oil and Hazardous Substance Liability

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

6. Property Rights

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

7. Confidentiality of Information

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

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

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

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

8. Duty to Reapply

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

9. State Authorities

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

10. Other Laws

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

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce Not a Defense

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

3. Duty to Mitigate

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

4. Bypass

a. Definitions

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

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

b. Bypass not exceeding limitations

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

c. Notice

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

d. Prohibition of bypass

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

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

5. Upset

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

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

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

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

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

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

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

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

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

c. Records of monitoring information shall include:

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

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

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

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

2. Inspection and Entry

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

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

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

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

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

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

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

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

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

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

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

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

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

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

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

e. Twenty-four hour reporting.

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

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

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

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

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

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

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

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

2. Signatory Requirement

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

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

3. Availability of Reports.

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

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

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

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

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

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

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

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

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

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

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

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

Construction Activities - The following definitions apply to construction activities:

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

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

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

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

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

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

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

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

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

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

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

Discharge of a pollutant means:

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

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

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

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

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

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

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

EPA means the United States "Environmental Protection Agency".

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System".

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

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

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

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

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

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

(a) Sewage from vessels; or

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Waters of the United States means:

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

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

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

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

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

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

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

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

(f) The territorial sea; and

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Range land is open land with indigenous vegetation.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3. Commonly Used Abbreviations

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

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

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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND
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: **MA0101478**

PUBLIC NOTICE PERIOD: April 30, 2013 – May 29, 2013

NAME AND ADDRESS OF APPLICANT:

City of Easthampton, Board of Public Works
50 Payson Avenue, Easthampton, Massachusetts 01027

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Easthampton Wastewater Treatment Plant
10 Gosselin Drive, Easthampton, Massachusetts 01027

RECEIVING WATERS: **Connecticut River (MA34-04) and Manhan River (MA34-11)**

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

TABLE OF CONTENTS

I. Proposed Action, Type of Facility and Outfall Locations

A. Proposed Action

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) for the reissuance of its NPDES permit to discharge to the Connecticut River and Manhan River, the designated receiving waters, through two outfalls. Outfall 001 is the main outfall and discharges into the Connecticut River; Outfall 002 is the auxiliary outfall and discharges into the Manhan River when flows exceed the capacity of Outfall 001. The facility is engaged in the collection and treatment of municipal, commercial and industrial wastewater. A figure showing the wastewater treatment facility and outfall location is included as **Attachment A**.

B. Wastewater Treatment Plant and Collection System Description

The Easthampton Wastewater Treatment Plant (WWTP) is a 3.8 MGD secondary wastewater treatment plant serving approximately 15,600 people in Easthampton, and receiving a total of about 10,000 gallons per day of wastewater from Northampton, Southampton and Holyoke. In addition, there is one categorical industrial user (CIU) and two non-categorical, significant industrial users (SIUs) in the sewered community (see Industrial Pre-Treatment Section in Part VI).

The WWTP consists of the following treatment units:

- preliminary treatment:
  - mechanically cleaned bar screen
  - manually cleaned bar rack (bypass)
  - aerated grit chamber
  - grit screw and bucket elevator
- primary treatment:
  - rectangular primary clarifiers (2)
- secondary treatment:
  - aeration basins with mechanical aeration (2)
  - center feed secondary clarifiers (2)
- disinfection/dechlorination
  - chlorination with sodium hypochlorite (flow paced);
  - chlorine contact chambers
  - dechlorination with sodium bisulfite (for discharge #002)
- outfalls
  - discharge to Connecticut River via outfall pipe (Outfall #001) or to Manhan River (Outfall #002) when hydraulic capacity of 001 is exceeded
- sludge treatment
  - gravity thickeners
  - odor control with potassium permanganate
  - chemical sludge condition polymer
  - belt filter press
  - sludge disposed off-site (Synagro-Northeast, Waterbury, CT)

The sewerage collection system has approximately 78.8 miles of sewers and includes 16 pump

stations. The collection system is completely separate (there are no storm water collection pipes tied into the sewage collection system).

C. Outfall Locations and Capacity

The main effluent pipe is approximately 2.1 miles long and discharges to the Connecticut River by gravity. The outfall is located near shore, just downstream of the confluence of the Connecticut and Manhan Rivers. During periods when discharge flows exceed the capacity of Outfall 001, flow is discharged to the Manhan River through Outfall 002. The hydraulic capacity of Outfall 001 varies based on the hydraulic regime in the Connecticut River. The permittee estimates that the peak capacity is 3.1 mgd at normal river level (101 ft.), 2.7 mgd at the ten year flood level and 1.2 mgd at the 50 year flood level (124 ft.). A more recent study submitted to EPA in 2009 by Tighe and Bond, verified these approximate flow capacities and is discussed in more detail below. Based upon the data in Attachment B1, the average monthly flow (as opposed to the peak capacities listed above) from Outfall 001 has often approached 3 mgd with a small number of months above 3 mgd, as measured by the plant's influent flow meter. The chief operator of the facility (Carl Williams) confirmed this flow capacity, stating that Outfall 001 is able to handle approximately 3 mgd under normal river conditions and the remaining flow goes to Outfall 002. Hence, the capacity in this permit reissuance for Outfall 001 is set at 3 mgd. The capacity for Outfall 002 is set at 0.8 mgd, the difference between the design flow (3.8 mgd) and the capacity of Outfall 001 (3 mgd).

The 2007 permit contained a special condition requiring the permittee to evaluate the hydraulic capacity of Outfall 001, maximize the flow through Outfall 001, and evaluate the feasibility of eliminating flow to Outfall 002. This evaluation was completed and a report from Tighe & Bond, Inc. was submitted to EPA on November 30, 2009. This report recommended short-term and long-term improvements. Short-term improvements included raising the overflow weir to the Manhan River outfall as well as cleaning the siphon section of the Connecticut River outfall. Long-term improvements included construction of a pump station to the Connecticut River outfall, eliminating flow to the Manhan River.

As of January 2013, the chief operator of the facility (Carl Williams) indicated that the overflow weir has been set to a maximum level and a large segment of the Connecticut River outfall has been cleaned within the last 2 years. The effect of this can be seen in the reduction in flows to Outfall 002 since May of 2010 (see Attachment B2). However, the City of Easthampton (the City) is not planning to construct a pump station to the Connecticut River. Instead, the City is considering diverting the entire flow to the Manhan River outfall in order to avoid the cost of maintaining the Connecticut River outfall pipe.

Should the City decide to alter the flow capacity or distribution to its outfalls, the permittee must inform EPA and the Massachusetts Department of Environmental Protection (MassDEP) and the permit may be reopened and adjusted accordingly. However, the City of Easthampton should note that an increased flow to the Manhan River could face certain complications, including more stringent effluent limits as well as antidegradation issues. Hence, it is recommended that the City coordinate well in advance with EPA and MassDEP regarding this matter.

II. Description of Discharge

A quantitative description of the discharge in terms of significant effluent parameters based on recent discharge monitoring reports (DMRs) from January 2008 through September 2012 may be found in **Attachment B** of this fact sheet.

III. Limitations and Conditions

The effluent limitations and monitoring requirements may be found in the draft NPDES permit.

IV. Permit Basis and Explanation of Effluent Limitation Derivation

A. Overview of Federal and State Regulations

Pursuant to 40 C.F.R. § 122.44 (d), permittees must achieve water quality standards established under Section 303 of the Clean Water Act (CWA), including state narrative criteria for water quality. Additionally, under 40 C.F.R. § 122.44 (d)(1)(i), "Limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." When determining whether a discharge causes, or has the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numeric criterion, the permitting authority shall use procedures which account for existing controls on point and non-point sources of pollution, and where appropriate, consider the dilution of the effluent in the receiving water.

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 requirements of the CWA. EPA's anti-backsliding provisions generally restrict the relaxation of permit limits, standards, and conditions. Therefore effluent limits in the reissued permit generally must be at least as stringent as those of the previous permit. Effluent limits based on technology, water quality, and state certification requirements must meet anti-backsliding provisions found under Section 402 (o) and 303 (d) of the CWA, and in 40 CFR 122.44 (1).

In accordance with regulations found at 40 CFR Section 131.12, MassDEP has developed and adopted a statewide antidegradation policy to maintain and protect existing in-stream water quality. The Massachusetts Antidegradation Policy is found at 314 CMR 4.04. No lowering of water quality is allowed, except in accordance with the antidegradation policy. All existing uses of the Connecticut River and Manhan River must be protected. This draft permit is being reissued with allowable discharge limits as, or more, stringent than those in the current permit and with the same parameter coverage. There is no change in the outfall locations. The public is invited to participate in the antidegradation finding through the permit public notice procedure.

Under Section 301(b)(1) 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 40 C.F.R. Part 133.102. In addition, Section 301(b)(1)(C) of the CWA requires that effluent limitations based on water quality considerations be established for point source discharges when such limitations are necessary to meet state or federal water quality standards that are applicable to the designated receiving water.

B. Water Quality Standards and Designated Uses

The Easthampton WWTP discharges to the Connecticut River Segment MA34-04 and to the Manhan River Segment MA34-11. Segment MA34-04 runs from the confluence with the Deerfield River, Greenfield/Montague/Deerfield to the Holyoke Dam, Holyoke/South Hadley, a

length of 34.4 miles. Segment MA34-11 runs from the outlet of Tighe Carmody Reservoir in Southampton to the confluence with the Connecticut River in Easthampton, a length of 19.2 miles.

The Connecticut River and Manhan River have been designated as Class B warm water fisheries. The Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations (CMR) 4.05(3) (b) states that Class B 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. They shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. The waters shall have consistently good aesthetic value.

A warm water fishery is defined in the Massachusetts Surface Water Quality Standards (MA SWQS) at 314 CMR 4.02 as waters in which the maximum mean monthly temperature generally exceeds 68° F (20° Celsius) during the summer months and are not capable of supporting a year-round population of cold water stenothermal aquatic life.

Segment MA34-04 of the Connecticut River is classified in the State's 2010 Integrated List of Waters as Category 5, as not in attainment and requiring a total maximum daily load (TMDL). The listed impairments for this segment are PCBs in fish tissue and *Escherichia coli (E. coli)*.

Segment MA34-11 of the Manhan River is classified in the State's 2010 Integrated List of Waters as Category 5, as not in attainment and requiring a TMDL. The listed impairment for this segment is *E. coli*.

C. Available Dilution

The 7Q10, or the 7-day mean stream low flow with 10-year recurrence interval, is the base flow used to calculate the effluent limits in NPDES permits (314 CMR 4.03(3)(a)).

7Q10 for the Connecticut River Outfall

The 7Q10 flow in the Connecticut River at the point of the Easthampton WWTP discharge is calculated using the 7Q10 value at the Montague USGS gage (01170500) (see table below) and using a proportion of drainage area at the gage and at the outfall site.

USGS Gage Data

USGS Gage Number and location	Drainage Area [sq. miles]	Period of Record	Annual Mean Flow [cfs]	90 % flow exceedance [cfs]	7Q10 [cfs]*
01170500 Connecticut River at Montague City	7,860	1904-2004	13,970	3,030	1,727

* USGS low flow statistics updated 1998

The drainage area at the Montague City gage is 7,860 square miles; the drainage area at the Easthampton WWTP discharge location is approximately 8,228 square miles. Therefore, the Connecticut River 7Q10 value at the discharge (Outfall 001) is:

7Q10 flow/drainage area = flow factor cfs/sq. mi.
1727/7860 = 0.22 cfs/sq. mi.
7Q10 = 8,228 x 0.22 = **1810 cfs**

The dilution factor for Outfall 001 is based upon the 7Q10 and the 3.8 mgd (5.9 cfs) design flow of the WWTP. The dilution factor is therefore:

(7Q10 {river} + effluent design flow)/ effluent flow =
(1810 + 5.9)/ 5.9 = **308**

Note that this factor assumes the total design flow from the Easthampton WWTP will go to Outfall 001. The available data seems to show that the long term average and maximum daily flows actually discharged are less than the design flow due to the hydraulic limitations of the effluent pipe, thus, the dilution factor under most scenarios would be greater than the 308 using the total design flow. A dilution factor based on actual flow was not calculated because the dilution factor at design flow is so high that the facility does not require any dilution-based water quality limitations.

7Q10 for the Manhan River Discharge

The Manhan River 7Q10 was calculated using an adjacent watershed, the Mill River in Northampton, with a USGS gage (01171500) (see table below) and developing a proportional evaluation of flows.

USGS Gage Data

USGS Gage Number and location	Drainage Area [sq. miles]	Period of Record	Annual Mean Flow [cfs]	90 % flow exceedance [cfs]	7Q10 [cfs]*
01171500 Mill River at Northampton	52.6	1938-2004	98.9	14	6.31

* USGS low flow statistics updated 1998

As shown above, the Mill River in Northampton has a drainage area of 52.6 square miles. The drainage area of the Manhan River at the location of Outfall 002 is 84 square miles. The 7Q10 value for the Mill River is 6.31 cfs, therefore the proportional 7Q10 for the Manhan River is 10.1 cfs (6.31 cfs x 84/52.6). However, it should be noted that discharges from Outfall 002 do not appear to occur during low flow periods, thus the 7Q10 will not be used as the river flow to determine effluent limitations for Outfall 002.

In the 2007 permit, daily flow data for the Mill River gage (U.S. Geological Survey: Water Years 2004 and 2005) were compared with dates on which there was an overflow from Outfall 002. The data indicated that overflows occurred when the Mill River flows were approximately 20 cfs or greater. In the development of the draft permit, the daily flow data for the Mill River gage was reevaluated. Since the time that the facility increased the proportion of flow to Outfall 001 (May of 2010), the discharge through Outfall 002 has decreased significantly and has only been active on days when Mill River flows were approximately 73 cfs or greater. Extrapolating flows in the Manhan River results in flows of **117 cfs** (approximately 73 cfs x 84/52.6) or greater

in the Manhan River when overflows from Outfall 002 occur. This baseline flow condition of 117 cfs will be used in determining required effluent limitations for Outfall 002.

As discussed earlier, the maximum daily flow capacity of Outfall 001 is about 3 mgd during normal Connecticut River levels. The effluent conditions and limitations for Outfall 002 will therefore be based upon a flow of 0.8 mgd (1.2 cfs), the difference between the wastewater treatment plant design capacity (3.8 mgd) and the capacity of Outfall 001 (3 mgd).

Therefore, the dilution factor for Outfall 002 is:

(7Q10 {river} + effluent design flow) / effluent flow = (117 cfs + 1.2 cfs)/ 1.2 cfs = **98.5**

Daily effluent flow data and corresponding daily river flow data were analyzed to confirm that these flow assumptions were sufficiently conservative under both acute and chronic conditions. Hence, these flow assumptions will be applied to all Manhan River water quality-based calculations in this fact sheet.

D. Flow

The design flow of the plant is 3.8 mgd. During the period from January 2008 to September 2012 (Attachment B3), the long term monthly average plant flow measured at the influent flow meter was 2.0 mgd (average of the monthly averages for the review period), with a maximum daily average flow of 3.4 mgd (average of the maximum daily flows each month for the review period). The monthly average influent flows ranged from 0.8 mgd to 8.0 mgd and the maximum daily flows ranged from 1.1 mgd to 10.1 mgd during the review period.

As discussed in Section I.C. above, the discharge from Outfall 001 to the Connecticut River is limited by the hydraulic capacity of the effluent discharge pipe, which is controlled in part by the stage of the Connecticut River. Flows greater than the hydraulic capacity of Outfall 001 are discharged to the Manhan River via Outfall 002.

As shown in Attachment B2, Outfall 002 discharges into the Manhan River with a monthly average flow of 0.55 mgd from January 2008 to September 2012. Prior to May of 2010, this outfall was active in almost every month during the review period. Since May of 2010, however, Outfall 002 was active in only 13 of 29 months (45%) and the average monthly discharge ranged from 0.04 mgd to 1.6 mgd, with an average of 0.35 mgd. This reduction in flow from Outfall 002 corresponds to the increase in flow capacity to Outfall 001 due to the weir adjustment and cleaning mentioned in Section I.C. above.

The flow limit for the combined discharge from Outfall 001 and Outfall 002 will be 3.8 mgd as measured at the plant's influent flow meter, and will be reported as an annual average flow, using monthly average flows from the previous eleven months and the reporting month. Monthly average and maximum daily flow for each outfall will also be required to be reported on the facility's monthly discharge monitoring report (DMR). In addition, flows from Outfall 002 are required to be recorded for each day that effluent is discharged through the outfall and submitted each month in an attachment to the DMR.

E. Conventional Pollutants

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

The draft permit includes average monthly and average weekly limits for BOD_5 and TSS and average monthly percent removal which are based on the secondary treatment requirements in 40 CFR 133.102(a); 40 CFR 133.102(b); and 40 CFR 122.45 (f). The draft permit includes average monthly and average weekly concentration limits of 30 mg/l and 45 mg/l respectively, and mass monthly average and weekly average limitations. The draft permit also includes maximum daily reporting requirements for both Outfalls 001 and 002 based on state water quality certification requirements. The calculations for the mass-based limits are shown below. The frequency of monitoring for BOD_5 and TSS are set at 1/week.

BOD_5 and TSS mass-based limit calculations (total for Outfalls 001 & 002):

Mass limit [lbs/day] = flow [mgd] x limit [mg/l] x 8.34 [conversion factor]
Flow = 3.8 mgd
Limit = 30 mg/l [average monthly] and 45 mg/l [average weekly]
Mass limits [Outfall 001 and 002] = 3.8 x 30 x 8.34 = 951 lb/day [average monthly]
Mass limits [Outfall 001 and 002] = 3.8 x 45 x 8.34 = 1426 lb/day [average weekly]

These limits shall be applied to the sum of the discharge from both outfalls 001 and 002.

The provisions of 40 CFR § 133.102(a)(3) and 133.103(b)(3) require that the 30 day average percent removal for BOD_5 and TSS be not less than 85%. These limits are maintained in the draft permit.

2. Dissolved Oxygen (DO)

A minimum concentration of DO is needed for fish and other aquatic life. As such and consistent with the requirements of the existing permit, the DO levels must not be less than 6.0 mg/l.

3. pH

The pH limits for Outfall 001 are 6.0-8.3 standard units (S.U.) with daily monitoring required. The minimum value of 6.0 S.U. was part of the 1995 permit and is a reflection of pH levels that occur in the treatment process due to nitrification in the aeration system. Due to the high dilution factor in the Connecticut River, EPA and MassDEP feel this is acceptable and will not cause any in-stream water quality violations of the in-stream state water quality standard for Class B waters [314 CMR 4.05(3)(b)], which is 6.5-8.3 S.U.

The pH limits for Outfall 002 are 6.5-8.3 S.U., in accordance with state water quality standards.

During the review period, of the 40 monitoring results there were 10 violations of the daily minimum limit and no violations of the maximum daily limit. In order to address this, the draft permit requires an option for the permittee to obtain an adjustment of its pH limits for Outfall 002 by conducting a pH adjustment demonstration project. The pH limits may be adjusted as long as the pH of the effluent remains between 6.0 – 9.0 SU and the pH of the receiving water remains between 6.5-8.3 S.U.

For discharges to freshwater receiving waters, a demonstration project must be conducted twice over the period of a year, once during the spring months (between March and April, when receiving water flows are high) and once during the summer months (between July and August, when receiving water flows are low). Detailed procedures for conducting a pH Adjustment Demonstration Project can be found in Attachment B of the draft permit.

4. *Escherichia coli* bacteria

The bacterial limits have been changed to conform to the Class B water quality criteria for bacteria found in the MA SWQS (314CMR 4.05(3)(b)4.). Massachusetts adopted these new criteria on December 29, 2006, which were approved by EPA on September 19, 2007. Accordingly, the monthly average and maximum daily E. coli limits are set at 126 cfu/100ml and 409 cfu/100ml (this is the 90% distribution of the geometric mean of 126 cfu/100 ml) respectively in the draft permit. These limits apply to both Outfall 001 and Outfall 002. Monitoring data collected by the permittee shows that the facility does not consistently achieve the proposed limits (see Attachment B1 and B2). Of the 28 months recording *E. coli* discharge results from Outfall 001, there have been 4 monthly average violations and 19 daily maximum violations. Of the 11 months recording *E. coli* discharge results from Outfall 002, there have been 8 monthly average violations and 9 daily maximum violations. The facility should ensure the disinfection system can adequately treat the effluent from both outfalls to eliminate any future *E. coli* violations.

These are seasonal limits that apply from April 1 through November 30, the months in which primary and secondary contact recreation are expected to occur. The limits are based on state certification requirements under section 401 (a) (1) of the CWA, as described in 40 CFR 124.53 and 124.55

F. Non-Conventional Pollutants

1. Total Residual Chlorine

Chlorine compounds produced by the chlorination of wastewater, as well as chlorine, can be extremely toxic to aquatic life. The instream chlorine water quality criteria for Massachusetts waters are defined in the National Recommended Water Quality Criteria: 2002, EPA822-R-02-047, as adopted by the MassDEP into the state water quality standards [314 CMR 4.05(5)(e)], The recommended criteria include a total residual chlorine (TRC) chronic criteria of 11 ug/l and an acute criteria of 19 ug/l. The following is the calculation of water quality-based TRC limits:

Total Residual Chlorine Limitations for **Outfall 001**:

Average monthly limit = {criteria}{dilution factor}

= (11 ug/l)(308) = 3388 ug/l = 3.39 mg/l

Maximum daily limit = (19 ug/l) (308) = 5852 ug/l = 5.85 mg/l

The draft permit has a more protective TRC limit of 1.0 mg/l based on the Massachusetts Water Quality Standards Implementation Policy For The Control Of Toxic Pollutants In Surface Waters, February 23, 1990. The Implementation Policy states that: "Waters shall be protected from unnecessary discharges of excess chlorine. In segments with dilution factors greater than 100, the maximum effluent concentration of chlorine shall not exceed 1.0 mg/l." The maximum daily TRC limit of 1.0 mg/l will be carried forward from the 2007 permit. The period of applicability will continue as in the current permit from April 1 through November 30.

Total Residual Chlorine Limitations for **Outfall 002**:

Average monthly limit = {criteria}{dilution factor}
= (11 ug/l)(98.5) = 1,084 ug/l = 1.08 mg/l

Maximum daily limit = (19 ug/l) (98.5) = 1,872 ug/l = 1.87 mg/l

The draft permit has a more protective TRC limit of 1.0 mg/l based on the Massachusetts Water Quality Standards Implementation Policy For The Control Of Toxic Pollutants In Surface Waters, February 23, 1990. The Implementation Policy states that: "Waters shall be protected from unnecessary discharges of excess chlorine. In segments with dilution factors greater than 100, the maximum effluent concentration of chlorine shall not exceed 1.0 mg/l." Although the dilution factor in this case is 98.5, the more protective maximum daily TRC limit of 1.0 mg/l will be applied. The period of applicability will be from April 1 through November 30.

The 2007 permit included a TRC limit of 0.05 mg/l (for Outfall 002) for both monthly average and daily maximum discharge. Since the less stringent limits calculated above will meet water quality standards, they will replace the limits from the 2007 permit. This is in accordance with antibacksliding regulations found at CWA Section 402(o) based upon the availability of new information regarding dilution in the Manhan River. Due to the periodic flow from Outfall 002 and the fact that the discharge occurs primarily during precipitation events when stream flow is higher than base flow, the chlorine limit is protective and should result in compliance with the water quality criteria for chlorine in the Manhan River.

The permittee is required to have an alarm system to warn of a chlorination system malfunction. This is a best management practice (BMP), and is being required under authority of 40 CFR § 122.44(k)(4). The permit requires the submission of the results to EPA of any additional testing

done than that required in the permit, if it is conducted in accordance with EPA approved methods, consistent with the provisions of 40 CFR § 122.41(l)(4)(ii).

2. Nitrogen

It has been determined that excessive nitrogen loadings are causing significant water quality problems in Long Island Sound, including low dissolved oxygen. In December 2000, the Connecticut Department of Environmental Protection (CT DEP) completed a TMDL for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL included a waste load allocation (WLA) for point sources and a load allocation (LA) for non-point sources. The point source WLA for out-of-basin sources (Massachusetts, New Hampshire and Vermont wastewater facilities discharging to the Connecticut, Housatonic and Thames River watersheds) requires an aggregate 25 percent reduction from the baseline total nitrogen loading estimated in the TMDL.

The baseline total nitrogen point source loadings estimated for the Connecticut, Housatonic, and Thames River watersheds were 21,672 lbs/day, 3,286 lbs/day, and 1,253 lbs/day respectively (see table below). The estimated current point source total nitrogen loadings for the Connecticut, Housatonic, and Thames Rivers respectively are 13,836 lbs/day, 2,151 lbs/day, and 1,015 lbs/day, based on recent information and including all POTWs in the watershed. The following table summarizes the estimated baseline loadings, TMDL target loadings, and estimated current loadings:

Basin	Baseline Loading* (lbs/day)	TMDL Target** (lbs/day)	Current Loading*** (lbs/day)
Connecticut River	21,672	16,254	13,836
Housatonic River	3,286	2,464	2,151
Thames River	1,253	939	1,015
Totals	26,211	19,657	17,002

* Estimated loading from TMDL (see Appendix 3 to CT DEP "Report on Nitrogen Loads to Long Island Sound", April 1998).
** Reduction of 25% from baseline loading.
*** Estimated current loading from 2004 – 2005 DMR data.

The TMDL target of a 25 percent aggregate reduction from baseline loadings is currently being met.

As shown in Attachment C, the estimated current loading for the Easthampton WWTP used in the above analysis was 493.7 lb/day, based upon a total nitrogen concentration of 19.6 mg/l (average of MA secondary treatment facilities) and the average flow of 3.02 mgd (19.6 mg/L * 3.02 mgd * 8.34). In order to get a more accurate assessment of the facilities nitrogen discharge, the 2007 permit required the facility to maintain the mass discharge loading of total nitrogen, based on the levels monitored over the first year of the permit term (2008). In 2008, the facility discharged an average of 284.6 lb/day. This baseline load is being carried forward in the draft permit.

A review of the DMRs from January 2008 through September 2012 indicate that the monthly

average total nitrogen load (from Outfall 001 and 002 combined) varied from 85 lb/d to 574 lb/d with an average value of 275 lb/d (refer to Attachment B1 and B2). Note that data represents both maximum daily and average monthly values since nitrogen was measured only once per month. Since compliance with the baseline load is calculated on an annual basis, the annual average nitrogen loads were calculated as follows: 284.6 lb/d in 2008, 266.1 lb/d in 2009, 242.2 lb/d in 2010, 304.6 lb/d in 2011 and 281.1 lb/d in 2012 (Jan. through Sept. only). These loadings indicate that the facility has been under the baseline in all years except 2011 and will need to optimize nitrogen removal in order to comply with the nitrogen loading requirement in the draft permit.

In order to ensure that the aggregate nitrogen loading from out-of-basin point sources does not exceed the TMDL target of a 25 percent reduction over baseline loadings, EPA has included a condition in the draft permit requiring the permittee to evaluate alternative methods of operating its plant to optimize the removal of nitrogen, and to describe previous and ongoing optimization efforts. Specifically, Part I.F. of the draft permit requires an evaluation of alternative methods of operating the existing wastewater treatment facility in order to control total nitrogen levels, including, but not limited to, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. This evaluation is required to be completed and submitted to EPA and MassDEP within one year of the effective date of the permit, along with a description of past and ongoing optimization efforts. The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies, document the annual nitrogen discharge load from the facility, and track trends relative to previous years.

The agencies intend to annually update the estimate of all out-of-basin total nitrogen loads and may incorporate total nitrogen limits in future permit modifications or reissuances as may be necessary to address increases in discharge loads, a revised TMDL, or other new information that may warrant the incorporation of numeric permit limits. There have been significant efforts by the New England Interstate Water Pollution Control Commission (NEIWPCC) work group and others since completion of the 2000 TMDL, which are anticipated to result in revised wasteload allocations for in-basin and out-of-basin facilities. Although not a permit requirement, it is strongly recommended that any facilities planning that might be conducted for this plant would consider alternatives for further enhancing nitrogen reduction.

3. Phosphorus

Excessive phosphorus in a water body can interfere with water uses by promoting excessive plant growth that can interfere with recreational activities and can also to reduce instream dissolved oxygen concentrations below levels necessary to support aquatic life.

MA SWQS include narrative nutrient criteria at 314 CMR 4.05(5)(c), requiring that “unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site specific criteria established in a TMDL or as otherwise established by the Department pursuant to 314 CMR 4.00. Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plant or algae, in any surface water shall be provided with the most appropriate treatment

as determined by the Department, including where necessary, highest and best practicable treatment for POTWs…"

EPA has published national guidance documents that contain recommended total phosphorus criteria and other indicators of eutrophication. EPA's Quality Criteria for Water 1986 (the Gold Book) recommends, to control eutrophication, that in-stream phosphorus concentrations should be less than 100 µg/l (0.100 mg/l) in streams or other flowing waters not discharging directly to lakes or impoundments.

More recently, EPA released Ecoregional Nutrient Criteria, established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published ecoregion-specific criteria represent conditions in waters minimally impacted by human activities, and thus representative of water without cultural eutrophication. The Easthampton Wastewater Treatment Plant is within Ecoregion XIV, Eastern Coastal Plain, Northeastern Coastal Zone. Recommended criteria for this Ecoregion are found in Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV, published in December, 2001, and includes a total phosphorus criterion of 23.75 µg/l (0.024 mg/l).

EPA has employed the Gold Book-recommended concentration (0.1 mg/l) to interpret the state's narrative standards for nutrients. The Gold Book value is based on effects as opposed to the ecoregional criterion, which was developed on the basis of reference conditions. EPA opted for the effects-based approach because it is often more directly associated with an impairment to a designated use (i.e. fishing, swimming). The effects-based approach provides a threshold value above which adverse effects (i.e. water quality impairments) are likely to occur. It applies empirical observations of a causal variable (i.e. phosphorus) and a response variable (i.e. chlorophyll a) associated with designated use impairments. Reference-based values are statistically derived from a comparison within a population of rivers in the same ecoregion class. Specifically, reference conditions presented are based on the 25th percentile of *all* nutrient data, including a comparison of reference conditions for the aggregate ecoregion versus subecoregions. *See* Ecoregional Nutrient Criteria at vii. They are a quantitative set of river characteristics (physical, chemical, and biological) that represent minimally impacted conditions. Thus, while reference conditions, which reflect minimally disturbed conditions, may meet the requirements necessary to support designated uses, they may also *exceed* the water quality necessary to support such requirements.

EPA has performed a reasonable potential analysis to determine whether, at the current effluent phosphorus concentration, there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria. The analyses below describe whether there is reasonable potential for Outfall 001 and 002 discharging into the Connecticut River and Manahan River, respectively.

For **Outfall 001**, EPA has taken the upstream concentration of phosphorus into account in its analysis. The 2003 Connecticut River Watershed Water Quality Assessment (Appendix B) presented ambient phosphorus concentrations for samples taken during April 2003 through September 2003 at Station 04A, upstream of the Easthampton WWTP's Outfall 001 on the Connecticut River. Five samples were taken, with results varying from 0.008 mg/l to 0.029 mg/l

with a median value of 0.016 mg/l. Because permit limits must protect receiving water during low flow conditions, 7Q10 flow of 1810 cfs, and the median background value of 0.016 mg/l were used in the equation below. The following data is also used in the calculations: the treatment plant maximum discharge total phosphorus concentration of 4.1 mg/l as reported in the DMRs (see Attachment B1), and the design flow of 3.8 mgd. EPA used this data to calculate an instream concentration downstream of the discharge. If the calculated concentration exceeds 100 ug/l (the EPA-recommended Gold Book concentration) there is reasonable potential for the discharge to exceed water quality standards and a phosphorus limit must be included in the permit.

Reasonable Potential Analysis for Outfall 001

$$C_r = \frac{Q_e C_e + Q_s C_s}{Q_r}$$

Q_e = effluent flow	= 3.8 mgd
C_e = effluent pollutant concentration	= 4.1 mg/l
Q_s = 7Q10 flow of receiving water	= 1,810 cfs = 1170 mgd
C_s = upstream concentration	= 0.016 mg/l
Q_r = receiving water flow = $Q_s + Q_e$	= (1170 + 3.8) mgd = 1173.8 mgd
C_r = receiving water concentration	compare to 100 µg/l (Gold Book)

$$C_r = \frac{(3.8 \text{ mgd} \times 4.1 \text{ mg/l}) + (1173.8 \text{ mgd} \times 0.016 \text{ mg/l})}{1173.8 \text{ mgd}}$$

$C_r = 29$ µg/l < 100 µg/l

Since the calculated instream concentration is less than the EPA-recommended Gold Book value, there is no reasonable potential to cause or contribute to an exceedance of water quality standards in the Connecticut River. The monthly average and maximum daily monitoring requirements for total phosphorus from Outfall 001 will be carried forward from the 2007 permit, as described in the draft permit.

For **Outfall 002**, EPA has taken the upstream concentration of phosphorus into account in its analysis. The 2003 Connecticut River Watershed Water Quality Assessment (Appendix B) presented ambient phosphorus concentrations for samples taken during April 2003 through October 2003 at Station 11A, upstream of the Easthampton WWTP's Outfall 002 on the Manhan River. Six samples were taken, with results varying from 0.018 mg/l to 0.061 mg/l with a median value of 0.033 mg/l. Because permit limits must protect receiving water during low flow conditions, expected low flow of 117 cfs (described in Section IV.C. above), and the median background value of 33 ug/l were used in the equation below. The maximum TP discharge concentration during the review period was 4.1 mg/l as reported in the DMRs (see Attachment B2). However, the discharge from Outfall 002 was reduced from around May of 2010 to present, as described in Section I.D. above and corresponding to effluent data in Attachment B2. Between May of 2010 and September of 2012, the maximum TP discharge concentration was 1.2 mg/l (based on the 5 reported values shown in Attachment B2). To better characterize the current discharge of TP, this more recent data is used in the calculation below. EPA believes that the recent decrease in phosphorus content is valid because the higher flows to the treatment plant (when Outfall 002 was in use more recently) are due to inflow and infiltration (I/I) which

has little phosphorus content, resulting in a decrease in effluent concentration. The portion of the treatment plant design flow designated to Outfall 002 is 0.8 mgd (described in Section IV.C. above). EPA used this data to calculate an instream concentration downstream of the discharge. If the calculated concentration exceeds 100 ug/l (the EPA-recommended Gold book concentration) there is reasonable potential for the discharge to exceed water quality standards and a phosphorus limit must be included in the permit.

Reasonable Potential Analysis for Outfall 002

$$C_r = \frac{Q_e C_e + Q_s C_s}{Q_r}$$

Q_e = effluent flow	= 0.8 mgd
C_e = effluent pollutant concentration	= 1.2 mg/l
Q_s = 7Q10 flow of receiving water	= 117 cfs = 75.6 mgd
C_s = upstream concentration	= 0.033 mg/l
Q_r = receiving water flow = $Q_s + Q_e$	= (75.6 + 0.8) mgd = 76.4 mgd
C_r = receiving water concentration	compare to 100 µg/l (Gold Book)

$$C_r = \frac{(0.8 \text{ mgd} \times 1.2 \text{ mg/l}) + (75.6 \text{ mgd} \times 0.033 \text{ mg/l})}{76.4 \text{ mgd}}$$

$C_r = 45$ µg/l < 100 µg/l

Since the calculated instream concentration is less than the EPA-recommended Gold Book value, there is no reasonable potential to cause or contribute to an exceedance of water quality standards in the Manhan River. The monthly average and maximum daily monitoring requirements for total phosphorus from Outfall 002 will be carried forward from the 2007 permit, as described in the draft permit.

4. 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 metals concentrations in the facility's effluent (from Whole Effluent Toxicity reports for tests performed on the discharges from outfalls 001 and 002 submitted between January 2008 and September 2012) was performed to determine reasonable potential for toxicity caused by aluminum, cadmium, copper, lead, nickel and zinc. The 2007 did not contain any metals limits.

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 affects the partitioning of metals between the particulate and dissolved fractions as the effluent mixes with the receiving water, often resulting in a transition from the particulate to dissolved form (*The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion* (USEPA 1996 [EPA-823-B96-007]). Consequently, quantifying only the dissolved fraction of metals in the effluent prior to discharge may not accurately reflect the biologically-available portion of metals in the receiving water. Regulations at 40 CFR 122.45(c) require, with limited exceptions, that metals limits in NPDES permits be expressed as total recoverable metals.

The analyses below describe whether there is reasonable potential for metals from Outfall 001 and 002 discharging into the Connecticut River and Manahan River, respectively, to cause or contribute to exceedances of water quality standards.

The effluent from **Outfall 001** (into Connecticut River, see Attachment B4) was characterized assuming a lognormal distribution in order to determine the estimated 95th percentile of the daily maximum. For metals with hardness-based water quality criteria, the criteria were determined using the equations in EPA's *National Recommended Water Quality Criteria: 2002*, using the appropriate factors for the individual metals (see table below). The downstream hardness was calculated to be 37.9 mg/l as $CaCO_3$, using a mass balance equation with the design flow (3 mgd), receiving water 7Q10, an upstream median hardness of 37.8 mg/l as $CaCO_3$ and an effluent median hardness of 98.9 mg/l as $CaCO_3$. The calculated value of 38 mg/l was used to determine the total recoverable metals criteria. The following table presents these acute and chronic total recoverable criteria, including the factors and equations used for each metal.

Metal	Parameters				Total Recoverable Criteria	
	m_a	b_a	m_c	b_c	Acute Criteria (CMC)* (ug/L)	Chronic Criteria (CCC)** (ug/L)
Aluminum	—	—	—	—	750	87
Cadmium	1.0166	-3.924	0.7409	-4.719	0.80	0.13
Copper	0.9422	-1.7000	0.8545	-1.702	5.61	4.07
Lead	1.273	-1.46	1.273	-4.705	23.74	0.92
Nickel	0.846	2.255	0.846	0.0584	206.47	22.96
Zinc	0.8473	0.884	0.8473	0.884	52.66	52.66

*Acute Criteria (CMC) = $\exp\{m_a * \ln(\text{hardness}) + b_a\}$

**Chronic Criteria (CCC) = exp{m_c*ln(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:

where:

Q_d = effluent flow (design flow = 3.0 mgd = 4.64 cfs)
C_d = effluent metals concentration in ug/L (95th percentile)
Q_S = stream flow upstream (7Q10 upstream = 1810 cfs)
C_S = background in-stream metals concentration in ug/L (median)
Q_r = resultant in-stream flow, after discharge (Q_S + Q_d = 1814.64 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. In EPA's Technical Support Document for Water Quality Based Toxics Control, EPA/505/2-90-001, March 1991, commonly known as the "TSD", box 3-2 describes the statistical approach in determining if there is reasonable potential for an excursion above the maximum allowable concentration (*i.e.*, the criterion). 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 below for the results of this analysis with respect to aluminum, cadmium, copper, lead, nickel and zinc. Also, see Attachment D for a sample calculation of reasonable potential determination.

Metal	Qd	Cd[1] (95th Percentile)	Qs	Cs[2] (Median)	Qr = Qs + Qd	Cr = (QdCd+QsCs)/Q_R	Criteria		Reasonable Potential	Limit = (QrCr*0.9-QsCs)/Qd	
	cfs	ug/l	cfs	ug/l	cfs	ug/l	Acute (ug/l)	Chronic (ug/l)	Cr > Criteria	Acute (ug/l)	Chronic (ug/l)
Aluminum	4.6	191.6	1810	123.5	1814.6	123.7	750	87	Y	N/A	87[3]
Cadmium		0		0		0	0.80	0.13	N	N/A	N/A
Copper		27.4		3.5		3.6	5.61	4.07	N	N/A	N/A
Lead		17.8		0		0.05	23.74	0.93	N	N/A	N/A
Nickel		2.1		1		1.0	206.47	22.96	N	N/A	N/A
Zinc		57.8		4.5		4.6	52.66	52.66	N	N/A	N/A

[1] Values calculated using 10 toxicity measurements from the 2008-2012 Whole Effluent Toxicity (WET) testing (see Attachment D).
[2] Median upstream data taken from WET testing on the Connecticut River just upstream of the Easthampton WWTF outfall (see Att. B)
[3] The chronic limit for Al is set at the chronic criterion since the upstream median concentration exceeds the criterion

As indicated in the table above, there is no reasonable potential (for either acute or chronic conditions) that the discharge of cadmium, copper, lead, nickel or zinc will cause or contribute to an exceedance of applicable water quality criteria. However, there is reasonable potential that the discharge of aluminum would cause of contribute to an exceedence of the chronic criterion. Since the upstream median concentration is above the criterion (87 ug/l), the draft permit includes a total recoverable aluminum limit of 87 ug/l for Outfall 001. Monitoring for the other metals will continue to be required as part of the WET tests.

The effluent from **Outfall 002** (into Manhan River, see Attachment B4) was characterized assuming a lognormal distribution in order to determine the estimated 95th percentile of the daily maximum. For metals with hardness-based water quality criteria, the criteria were determined using the equations in EPA's *National Recommended Water Quality Criteria: 2002*, using the appropriate factors for the individual metals (see table below). The downstream hardness was calculated to be 23.9 mg/l as $CaCO_3$, using a mass balance equation with the design flow (0.8 mgd), receiving water low flow of 117 cfs, an upstream median hardness of 23.4 mg/l as $CaCO_3$ and an effluent median hardness of 79.9 mg/l as $CaCO_3$. The calculated value of 23.9 mg/l was used to determine the total recoverable metals criteria. The following table presents these acute and chronic total recoverable criteria, including the factors and equations used for each metal.

Metal	Parameters				Total Recoverable Criteria	
	m_a	b_a	m_c	b_c	Acute Criteria (CMC)* (ug/L)	Chronic Criteria (CCC)** (ug/L)
Aluminum	—	—	—	—	750	87
Cadmium	1.0166	-3.924	0.7409	-4.719	0.50	0.09
Copper	0.9422	-1.7000	0.8545	-1.702	3.63	2.75
Lead	1.273	-1.46	1.273	-4.705	13.20	0.51
Nickel	0.846	2.255	0.846	0.0584	139.78	15.54
Zinc	0.8473	0.884	0.8473	0.884	35.63	35.63

*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:

where:

Q_d = effluent flow (design flow = 0.8 mgd = 1.24 cfs)
C_d = effluent metals concentration in ug/L (95th percentile)
Q_S = stream flow upstream (low flow upstream = 117 cfs)

C_S = background in-stream metals concentration in ug/L (median)
Q_r = resultant in-stream flow, after discharge ($Q_S + Q_d$ = 118.24 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. In EPA's Technical Support Document for Water Quality Based Toxics Control, EPA/505/2-90-001, March 1991, commonly known as the "TSD", box 3-2 describes the statistical approach in determining if there is reasonable potential for an excursion above the maximum allowable concentration (*i.e.*, the criterion). 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 below for the results of this analysis with respect to aluminum, cadmium, copper, lead, nickel and zinc. Also, see Attachment E for a sample calculation of reasonable potential determination.

Metal	Qd	Cd[1] (95th Percentile)	Qs	Cs[2] (Median)	Qr = Qs + Qd	Cr = (QdCd+QsCs)/Q_R	Criteria		Reasonable Potential	Limit = (QrCr*0.9-QsCs)/Qd	
	cfs	ug/l	cfs	ug/l	cfs	ug/l	Acute (ug/l)	Chronic (ug/l)	Cr > Criteria	Acute (ug/l)	Chronic (ug/l)
Aluminum	1.2	140.7	117	467	118.2	463.6	750	87	Y	N/A	87[3]
Cadmium		0		0		0	0.50	0.09	N	N/A	N/A
Copper		21		2.5		2.69	3.63	2.75	N	N/A	N/A
Lead		8.4		0		0.1	13.20	0.51	N	N/A	N/A
Nickel		6.3		1.2		1.3	139.78	15.54	N	N/A	N/A
Zinc		48.3		8.5		8.9	35.63	35.63	N	N/A	N/A

[1] Values calculated using 6 toxicity measurements from the 2008-2012 Whole Effluent Toxicity (WET) testing (see Attachment E).
[2] Median upstream data taken from WET testing on the Manhan River just upstream of the Easthampton WWTF outfall (see Att. B)
[3] The chronic limit for Al is set at the chronic criterion since the upstream median concentration exceeds the criterion

As indicated in the table above, there is no reasonable potential (for either acute or chronic conditions) that the discharge of cadmium, copper, lead, nickel or zinc will cause or contribute to an exceedance of applicable water quality criteria. However, there is reasonable potential that the discharge of aluminum would cause or contribute to an exceedence of the applicable chronic water quality criterion. Hence, the draft permit contains a total recoverable aluminum limit of 87 ug/l (monthly average). Monitoring for the other metals will continue to be required as part of the annual WET tests.

G. Whole Effluent Toxicity

National studies conducted by the Environmental Protection Agency have demonstrated that domestic sources contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents and aromatic hydrocarbons, among others.

Based on the potential for toxicity resulting from domestic and industrial contributions, and in accordance with EPA regulation and policy, the draft permit includes acute 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 Region I has developed a toxicity control policy which requires wastewater treatment facilities to perform toxicity bioassays on their effluents. The Region's current policy is to include toxicity testing requirements in all municipal permits, while Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts.

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 analyses; (2) bioavailability of pollutants after discharge is best measured by toxicity testing including any synergistic effects of pollutants; and (3) pollutants for which there are inadequate chemical analytical methods or criteria can be addressed. Therefore, toxicity testing is being used in conjunction with pollutant- specific control procedures to control the discharge of toxic pollutants.

In order to evaluate the potential toxicity of the effluent and in conformance with EPA and MassDEP policy, both Outfall 001 and Outfall 002 require acute (LC50) toxicity testing. The LC50 testing for Outfall 001 will be required twice per year, in June and September with a limit of ≥50%, in accordance with the MassDEP toxicity policy for dischargers with dilution factors greater than 100. The LC50 testing for Outfall 002 is required twice per year, in March and December, with a limit of 100% based upon a dilution factor of 98.5. Chronic toxicity testing for Outfall 002, as required in the 2007 permit, is no longer required due to the increased dilution factor. All toxicity testing shall be done using a single species, the daphnid (*Ceriodaphnia dubia*).

Results from tests during the 2008-2012 review period are shown in Attachment B1 and B2. All toxicity results for both outfalls were in compliance with 2007 limits. Given this record of compliance, the monitoring frequencies have been carried forward in the draft permit.

V. Sludge

Section 405(d) of the CWA requires that EPA develop technical standards regulating the use and disposal of sewage sludge. These regulations were signed on November 25, 1992, published in the Federal Register on February 19, 1993, and became effective on March 22, 1993. Domestic sludge that is land applied, disposed of in a surface disposal unit, or fired in a sewage sludge incinerator is subject to Part 503 technical standards and to State Env-Wq 800 standards. Part 503 regulations have a self-implementing provision, however, the CWA requires implementation through permits. Domestic sludge which is disposed of in municipal solid waste landfills are in compliance with Part 503 regulations provided the sludge meets the quality criteria of the landfill

and the landfill meets the requirements of 40 CFR Part 258.

The draft permit has been conditioned to ensure that sewage sludge use and disposal practices meet the CWA Section 405(d) Technical Standards. In addition, EPA-New England has prepared a 72-page document entitled "EPA Region I NPDES Permit Sludge Compliance Guidance" for use by the permittee in determining their appropriate sludge conditions for their chosen method of sewage sludge use or disposal practices. This guidance document is available upon request from EPA Region 1 and may be found at: http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf. The permittee is required to submit an annual report to EPA Region 1 and MassDEP, by February 19th each year, containing the information specified in the Sludge Compliance Guidance document for their chosen method of sewage sludge use or disposal practices.

VI. Pretreatment

The facility accepts industrial wastewater from one categorical industrial user (CIU) and two significant industrial users (SIUs) including:

- Chemetal {CIU} [flow = 250 gpd]
- Nonwovens, Mechanic Street {SIU} [flow = 40,000 gpd]
- City of Easthampton Landfill {SIU} [flow = 5,940 gpd]

Chemetal is involved in metal working to produce interior metal sheets and laminates and discharges 250 gpd of wastewater intermittently. They are subject to local limits and categorical pretreatment standards found at 40 CFR 433.15. *National Nonwovens* is involved in manufacturing and dying non-woven textiles and discharges 40,000 gpd of wastewater intermittently. They are subject to local limits under the pretreatment standards. *The City of Easthampton Landfill* is a solid waste landfill and discharges 5,940 gpd of leachate intermittently. They are subject to local limits under the pretreatment standards.

The permittee is required to administer a pretreatment program based on the authority granted under 40 CFR §122.44(j), 40 CFR Part 403 and Section 307 of the Act. The permittee's pretreatment program received EPA approval on September 24, 1984 and, as a result, appropriate pretreatment program requirements were incorporated into the 2007 permit which were consistent with that approval and federal pretreatment regulations in effect when the permit was issued.

The Federal Pretreatment Regulations in 40 CFR Part 403 require the permittee to: (1) develop and enforce EPA approved specific effluent limits (technically-based local limits); (2) revise the local sewer-use ordinance or regulation, as appropriate, to be consistent with Federal Regulations; (3) develop an enforcement response plan; (4) implement a slug control evaluation program; (5) track significant noncompliance for industrial users; and (6) establish a definition of and track significant industrial users.

These requirements are necessary to ensure continued compliance with the POTW's NPDES permit and its sludge use or disposal practices. In addition to the requirements described above, the draft permit requires the permittee to submit to EPA in writing, within 180 days of the permit's effective date, a description of proposed changes, if applicable, to the permittee's

pretreatment program deemed necessary to assure conformity with current federal pretreatment regulations. These requirements are included in the draft permit to ensure that the pretreatment program is consistent and up-to-date with all pretreatment requirements in effect. The permittee must also continue to submit, by March 1st each year, an annual pretreatment report detailing the activities of the program for the previous year.

VII. Anti-degradation

This draft permit is being reissued with an allowable waste-load identical to the current permit and there has been no change in outfall location. The State of Massachusetts has indicated that there will be no lowering of water quality and no loss of existing water uses and that no additional anti-degradation review is warranted.

VIII. 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 Fisheries Services (NOAA Fisheries) if EPA's action or proposed action that it funds, permits, or undertakes, may adversely impact any essential fish habitat (EFH). The Amendments broadly define "essential fish habitat" as: waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. § 1802 (10)). "Adversely impact" means any impact which reduces the quality and/or quantity of EFH (50 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.

Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. § 1855(b)(1)(A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

The Atlantic salmon (*Salmo salar)* is the only managed species with designated EFH in the Connecticut River, which is classified in the MA SWQS at 314 CMR 4.00 as a Class B - warm water fishery. Class B waters are designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other crucial functions, and for primary and secondary contact recreation.

Atlantic salmon are expected to be present during one or more lifestages within the area which encompasses the discharge site. Although the last remnant stock of Atlantic salmon indigenous to the Connecticut River was believed to have been extirpated over 200 years ago, an active effort has been underway throughout the Connecticut River system since 1967 to restore this historic run (HG&E/MMWEC, 1997). Atlantic salmon may pass in the vicinity of the discharge either on the migration of juveniles downstream to Long Island Sound or on the return of adults to upstream areas. The area of the discharge on the Connecticut River mainstem, approximately 31 miles downstream from the Turners Falls Dam and approximately 6.5 miles upstream from the Holyoke Dam, is not judged to be suitable for spawning, which is likely to occur in tributaries where the appropriate gravel or cobble riffle substrate can be found.

EPA has determined that the limits and conditions contained in this draft permit minimize

adverse effects to Atlantic Salmon EFH for the following reasons:

- This is a reissuance of an existing permit;
- The Connecticut River dilution factor (308) is high;
- The Connecticut River is approximately 500 feet wide in the vicinity of the Easthampton discharge, providing a large zone of passage for migrating Atlantic salmon that is unaffected by the discharge;
- Acute toxicity tests will be conducted twice per year on the daphnid (*Ceriodaphnia dubia*);
- The draft permit prohibits violations of the state water quality standards;
- Limits specifically protective of aquatic organisms have been established for total residual chlorine and total recoverable aluminum based on state water quality criteria;
- The facility withdraws no water from the Connecticut River, so no life stages of Atlantic salmon are vulnerable to impingement or entrainment from this facility;
- The effluent limitations and conditions in the draft permit were developed to be protective of all aquatic life.

EPA believes that the conditions and limitations contained within the draft permit adequately protects all aquatic life, including those with designated EFH in the receiving water, and that further mitigation is not warranted. NMFS will be notified and an EFH consultation will be reinitiated 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 our conclusions.

As the federal agency charged with authorizing the discharge from this facility, EPA has submitted the draft permit and fact sheet, along with a cover letter, to NMFS Habitat Division for their review.

IX. Endangered Species

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat.

EPA has reviewed the federal endangered or threatened species of fish, wildlife, or plants to determine if any listed species might potentially be impacted by the re-issuance of this NPDES permit. The two listed species that have the potential to be present in the vicinity of the Easthampton WWTF discharge are the shortnose sturgeon (*Acipenser brevirostrum*) and the Atlantic sturgeon (*Acipenser oxyrinchus*).

Based on the expected distribution of the species, EPA has determined that there are no Atlantic sturgeon in the action area and that the reissuance of the permit will have no effect on the species. Therefore, consultation under Section 7 of the ESA with NMFS for Atlantic sturgeon is not required.

Based on the analysis of potential impacts to shortnose sturgeon presented in Attachment E to this fact sheet, EPA has made the preliminary determined that impacts to shortnose sturgeon from the discharge at the Easthampton WWTF, if any, will be insignificant or discountable and not likely to adversely affect shortnose sturgeon. EPA has judged that a formal consultation pursuant to Section 7 of the ESA is not required. EPA is seeking concurrence from NMFS regarding this determination through the information in this fact sheet and the draft permit, as well as a letter under separate cover.

Attachment E provides the complete discussion of EPA's Endangered Species Act assessment as it relates to the renewal of the Easthampton WWTF's NPDES permit.

X. Sewer System Operation and Maintenance

EPA regulations set forth a standard condition for "Proper Operation and Maintenance" that is included in all NPDES permits. *See* 40 CFR § 122.41(e). This condition is specified in Part II.B.1 (General Conditions) of the draft permit and it requires the proper operation and maintenance of all wastewater treatment systems and related facilities installed or used to achieve permit conditions.

EPA regulations also specify a standard condition to be included in all NPDES permits that specifically imposes on permittees a "duty to mitigate." *See* 40 CFR § 122.41(d). This condition is specified in Part II.B.3 of the draft permit and it requires permittees to take all reasonable steps – which in some cases may include operations and maintenance work - to minimize or prevent any discharge in violation of the permit which has the reasonable likelihood of adversely affecting human health or the environment.

Proper operation of collection systems is critical to prevent blockages and equipment failures that would cause overflows of the collection system (sanitary sewer overflows, or SSOs), and to limit the amount of non-wastewater flow entering the collection system (inflow and infiltration or I/I). I/I in a collection system can pose a significant environmental problem because it may displace wastewater flow and thereby cause, or contribute to causing, SSOs. Moreover, I/I could reduce the capacity and efficiency of the treatment plant and cause bypasses of secondary treatment. Therefore, reducing I/I will help to minimize any SSOs and maximize the flow receiving proper treatment at the treatment plant. There is presently estimated to be approximately 1.1 mgd of I/I in the sewer system. In its September 6, 2001 Infiltration and Inflow Policy, MassDEP specified that certain conditions related to I/I control be established in NPDES municipal permits

Therefore, specific permit conditions have been included in Parts I.B. and I.C. of the draft permit. These requirements include mapping of the wastewater collection system, preparing and implementing a collection system operation and maintenance plan, reporting unauthorized discharges including SSOs, maintaining an adequate maintenance staff, performing preventative maintenance, controlling infiltration and inflow to the extent necessary to prevent SSOs and I/I related-effluent violations at the wastewater treatment plant, and maintaining alternate power where necessary.

These requirements are intended to minimize the occurrence of permit violations that have a

reasonable likelihood of adversely affecting human health or the environment. The City has an I/I plan last updated in 2008 including flow monitoring, TV inspection, a prioritized removal plan, a private inflow source removal program, and a public education program.

XI. 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 includes new provisions related to Discharge Monitoring Report (DMR) submittals to EPA and the State. The draft permit requires that, no later than one year after the effective date of the permit, the permittee submit all monitoring data and other reports required by the permit to EPA using NetDMR, unless the permittee is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports ("opt-out request").

In the interim (until one year from the effective date of the permit), the permittee may either submit monitoring data and other reports to EPA in hard copy form, or report electronically using NetDMR.

NetDMR is a national web-based tool for regulated Clean Water Act permittees to submit discharge monitoring reports (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.

EPA currently conducts free training on the use of NetDMR, and anticipates that the availability of this training will continue to assist permittees with the transition to use of NetDMR. To participate in upcoming trainings, visit http://www.epa.gov/netdmr for contact information for New Hampshire.

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. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA or to NHDES.

The draft permit also includes an "opt-out" request process. Permittees who believe they cannot use NetDMR due to technical or administrative infeasibilities, or other logical reasons, must demonstrate the reasonable basis that precludes the use of NetDMR. These permittees must submit the justification, in writing, to EPA at least sixty (60) days prior to the date the facility would otherwise be required to begin using NetDMR. Opt-outs become effective upon the date of written approval by EPA and are valid for twelve (12) months from the date of EPA approval. The opt-outs expire at the end of this twelve (12) month period. Upon expiration, the permittee must submit DMRs and reports to EPA using NetDMR, unless the permittee submits a renewed

opt-out request sixty (60) days prior to expiration of its opt-out, and such a request is approved by EPA.

Until electronic reporting using NetDMR begins, or for those permittees that receive written approval from EPA to continue to submit hard copies of DMRs, the Draft Permit requires that submittal of DMRs and other reports required by the permit continue in hard copy format. Hard copies of DMRs must be postmarked no later than the 15th day of the month following the completed reporting period.

XII. State Certification Requirements

EPA may not issue a permit unless MassDEP with jurisdiction over the receiving waters 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 MA SWQS. The staff of MassDEP have reviewed the draft permit. EPA has requested permit certification by the state pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

XIII. Public Comment Period, Public Hearing, 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 a supporting material for their arguments in full by the close of the public comment period, to Michael Cobb, U.S. EPA, MA Office of Ecosystem Protection, 5 Post Office Square, Suite 100, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing to EPA and MassDEP for a public hearing to consider the draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held 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.

XIV. EPA Contact

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:

Michael Cobb
Municipal Permits Branch
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP 06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1369
E-Mail: cobb.michael@epa.gov

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

April 2013

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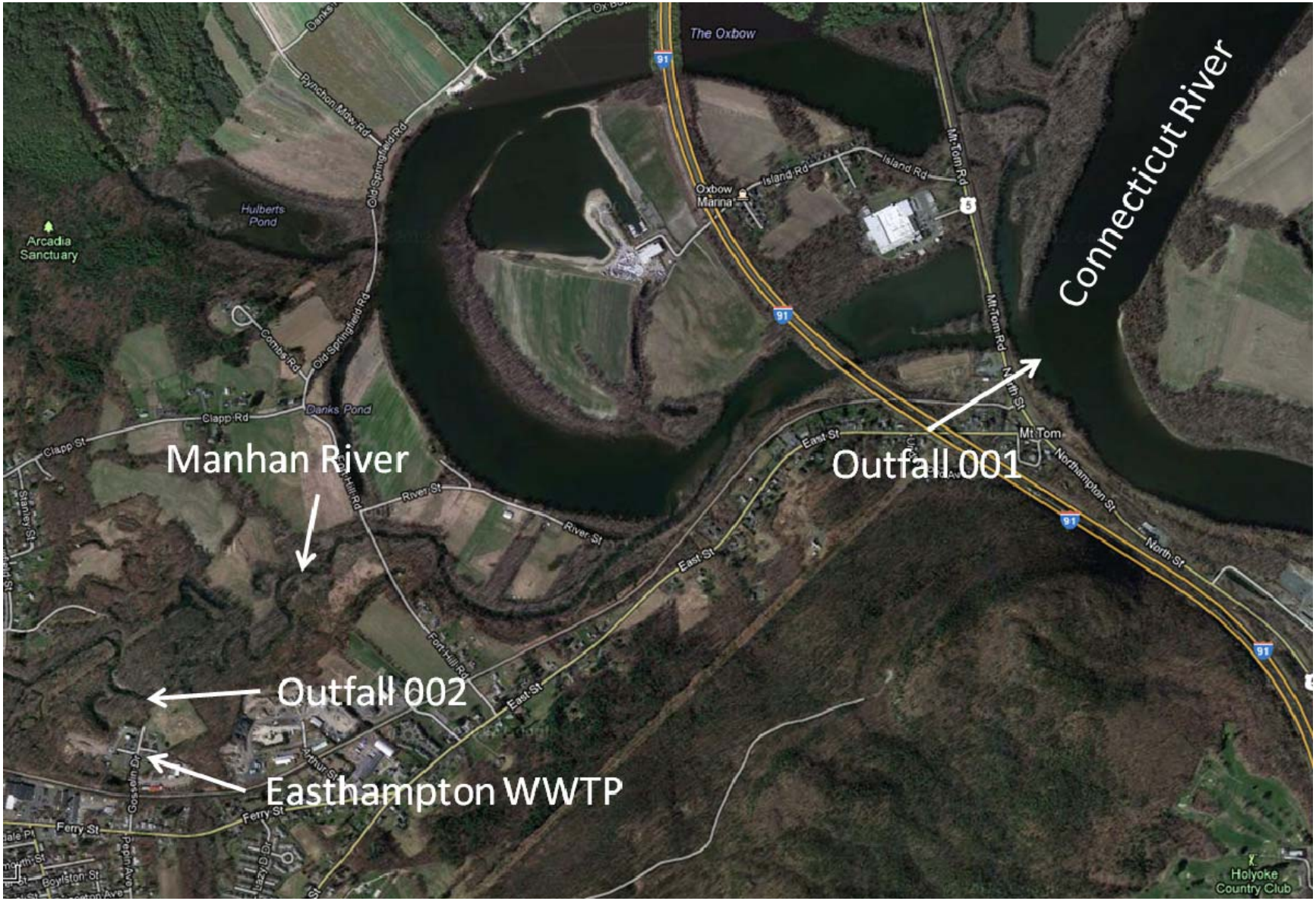
Date

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

Attachment A – Aerial View of Facility, Receiving Waters and Outfall Locations



(Aerial view obtained from maps.google.com)

Attachment B – Discharge Monitoring Report Summary

PART B1 – OUTFALL 001

Monitoring Period End Date	BOD5				TSS				Flow		TRC		pH	
	MO AVG	WKLY AVG	DAILY MX	MO AV MN	MO AVG	WKLY AVG	DAILY MX	MO AV MN	MO AVG	DAILY MX	MO AVG	DAILY MX	MIN	MAX
	30 mg/L	45 mg/L	Req. Mon. mg/L	85 %	30 mg/L	45 mg/L	Req. Mon. mg/L	85 %	Req. Mon. MGD	Req. Mon. MGD	1 mg/L	1 mg/L	6 SU	8.3 SU
01/31/2008	14.8	30.1	44.	90.7	13.8	27.2	92.	92.4	1.4	1.9	--	--	6.7	7.
02/29/2008	10.1	15.3	15.3	87.2	8.	9.5	16.6	92.3	3.1	5.2	--	--	6.4	6.9
03/31/2008	20.2	42.1	70.5	**68.8**	13.7	22.2	46.	**79.**	3.7	5.4	--	--	6.5	6.9
04/30/2008	13.7	20.	21.5	85.3	9.5	24.9	27.5	91.8	2.6	3.6	0.81	1.	6.6	6.9
05/31/2008	13.7	21.3	33.3	90.5	8.8	13.2	30.5	94.5	1.6	2.4	0.79	0.98	6.7	7.1
06/30/2008	24.5	**45.4**	58.	86.2	13.6	25.8	47.	94.2	1.2	1.5	0.69	1.	6.8	7.5
07/31/2008	23.5	41.9	42.8	86.9	17.3	26.1	41.	91.3	1.2	1.5	0.45	1.	6.5	7.2
08/31/2008	21.9	31.2	36.6	**81.1**	11.8	13.9	22.5	91.8	1.6	2.8	0.34	0.98	6.5	7.
09/30/2008	13.4	21.	22.8	89.6	6.5	11.3	16.5	95.8	1.7	3.1	0.43	1.	6.4	6.9
10/31/2008	21.7	36.3	50.4	85.1	13.	19.6	30.	92.1	1.3	1.8	0.37	0.93	6.5	7.7
11/30/2008	17.1	22.4	26.1	89.2	8.7	11.5	14.5	94.6	1.4	1.8	0.38	0.58	6.4	6.9
12/31/2008	16.9	13.6	30.6	85.3	10.6	18.8	39.	89.8	2.4	4.1	--	--	6.5	6.9
01/31/2009	23.6	38.6	51.	**84.5**	13.5	26.8	64.	90.	1.7	2.6	--	--	6.6	7.8
02/28/2009	13.1	15.	16.6	92.5	6.1	8.7	11.5	96.4	1.4	1.9	--	--	6.9	7.1
03/31/2009	9.	12.3	19.	92.5	7.	7.6	12.6	94.4	2.2	3.	--	--	6.7	7.
04/30/2009	10.5	13.5	13.6	92.3	7.4	8.4	11.	94.8	1.8	2.2	0.68	0.82	6.7	7.
05/31/2009	22.6	34.6	40.8	**84.2**	14.7	22.	27.	91.3	1.5	2.1	0.47	1.	6.7	7.
06/30/2009	14.4	18.2	19.5	90.3	5.5	6.6	7.6	96.8	1.6	2.4	0.56	1.	6.6	7.1
07/31/2009	11.9	15.5	18.2	91.7	6.5	7.7	19.	96.5	1.6	2.6	0.47	0.89	6.6	7.
08/31/2009	11.4	13.1	17.1	92.4	4.9	6.	8.	97.1	1.5	2.4	0.29	0.93	6.4	7.
09/30/2009	9.4	10.1	12.1	93.5	5.9	6.1	7.	96.4	1.1	1.4	0.5	0.82	6.5	6.9
10/31/2009	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/30/2009	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/31/2009	--	--	--	--	--	--	--	--	--	--	--	--	--	--
01/31/2010	16.4	23.4	25.6	89.6	6.2	7.1	13.5	96.2	2.	3.2	--	--	6.5	6.9
02/28/2010	18.8	23.3	24.1	90.1	11.6	15.9	27.	93.5	1.6	3.6	--	--	6.5	7.2
03/31/2010	13.3	15.7	27.	86.3	9.6	11.4	28.	91.7	2.9	5.5	--	--	6.3	6.9
04/30/2010	9.9	11.4	14.5	91.7	6.2	8.	27.	95.8	2.6	4.8	0.3	0.86	6.4	6.9

Monitoring Period End Date	BOD5				TSS				Flow		TRC		pH	
	MO AVG	WKLY AVG	DAILY MX	MO AV MN	MO AVG	WKLY AVG	DAILY MX	MO AV MN	MO AVG	DAILY MX	MO AVG	DAILY MX	MIN	MAX
	30 mg/L	45 mg/L	Req. Mon. mg/L	85 %	30 mg/L	45 mg/L	Req. Mon. mg/L	85 %	Req. Mon. MGD	Req. Mon. MGD	1 mg/L	1 mg/L	6 SU	8.3 SU
05/31/2010	12.5	14.7	20.1	92.6	9.	14.3	31.	95.9	1.4	1.6	0.46	1.	6.8	7.
06/30/2010	29.7	34.8	58.	86.2	19.2	34.	95.	92.7	1.2	1.4	0.52	0.94	6.5	7.1
07/31/2010	16.6	21.1	25.	93.9	9.6	12.	17.	97.	0.96	1.19	0.41	1.	6.4	6.9
08/31/2010	14.1	20.6	24.3	94.3	7.2	16.3	24.	97.3	0.88	1.1	0.61	0.95	6.7	7.
09/30/2010	12.	14.7	17.4	94.9	3.6	3.7	5.6	98.5	0.83	1.2	0.56	1.	6.4	7.1
10/31/2010	16.	23.6	33.6	91.	9.7	15.8	28.	95.3	1.29	2.2	0.68	1.	6.2	6.9
11/30/2010	22.	29.	30.8	86.6	13.5	16.4	20.	92.6	1.4	1.8	0.67	1.	6.2	6.9
12/31/2010	20.9	32.5	40.5	85.	18.	19.	66.	86.	1.88	3.5	--	--	6.4	7.1
01/31/2011	3.	**76.5**	110.	**84.**	19.6	**46.7**	100.	90.	1.3	1.8	--	--	6.8	7.1
02/28/2011	15.6	25.8	28.3	92.3	8.7	19.3	22.	95.5	1.25	1.99	--	--	6.9	7.1
03/31/2011	8.	11.4	16.7	90.1	9.4	16.2	30.5	91.4	3.8	5.7	--	--	6.	7.1
04/30/2011	21.4	34.5	51.	**75.1**	10.2	13.5	30.5	91.3	2.8	4.2	0.43	0.77	6.5	7.1
05/31/2011	9.1	12.	13.8	91.1	5.5	6.5	10.	95.7	2.4	4.	0.44	0.86	6.7	7.2
06/30/2011	16.9	28.7	41.	88.8	9.6	14.5	23.	94.9	1.7	2.1	0.4	0.84	6.2	6.9
07/31/2011	7.9	8.9	11.6	95.3	5.3	6.5	9.2	97.4	1.24	1.6	0.62	**1.8**	6.2	7.
08/31/2011	16.6	34.5	40.7	90.3	15.7	31.4	46.	91.9	1.43	4.6	0.41	0.97	6.3	6.8
09/30/2011	9.9	23.1	23.1	87.8	7.9	12.8	17.5	94.1	2.6	5.	0.41	0.91	6.3	6.8
10/31/2011	8.3	10.4	14.2	92.7	6.4	7.6	12.	94.4	3.	5.1	0.51	1.	6.2	6.8
11/30/2011	6.9	8.1	10.3	94.6	4.8	6.5	8.8	96.5	2.3	2.9	0.63	0.93	6.1	7.
12/31/2011	10.9	15.5	19.8	92.2	6.1	8.2	12.2	95.3	2.6	4.5	--	--	6.	6.9
01/31/2012	12.7	14.9	19.2	91.8	8.9	10.9	14.	93.9	1.92	2.44	--	--	6.3	7.3
02/29/2012	19.6	19.3	42.	88.9	14.8	12.9	53.	90.9	2.11	1.56	--	--	6.7	7.3
03/31/2012	15.8	37.	27.3	91.4	11.4	32.6	27.	94.1	1.64	2.08	--	--	6.8	7.3
04/30/2012	23.6	42.8	43.2	87.9	9.3	15.4	23.	95.4	1.32	1.83	0.65	1.	6.9	7.4
05/31/2012	**45.2**	**83.4**	98.6	**77.6**	19.3	38.7	64.	91.2	1.34	1.55	0.47	**1.54**	6.4	7.3
06/30/2012	**32.1**	**53.1**	62.4	**78.8**	16.4	23.9	33.	91.3	1.4	2.03	0.43	1.	6.4	7.1
07/31/2012	11.6	16.5	17.8	95.2	9.7	8.1	53.5	96.2	0.96	1.44	0.53	1.	6.2	7.
08/31/2012	9.3	12.6	15.	95.9	4.7	6.2	10.4	98.1	1.01	1.87	0.36	0.58	6.	6.7
09/30/2012	24.7	**50.1**	70.2	87.7	13.2	20.5	40.	94.5	1.08	1.42	0.25	0.46	6.3	6.9
Minimum	3.	8.1	10.3	68.8	3.6	3.7	5.6	79.	0.83	1.1	0.25	0.46	6.	6.7
Maximum	45.2	83.4	110.	95.9	19.6	46.7	100.	98.5	3.8	5.7	0.81	1.8	6.9	7.8
Average	16.09	25.84	32.91	88.73	10.13	15.86	29.86	93.70	1.77	2.71	.50	.95	6.48	7.05

Monitoring Period End Date	Fecal Coliform		E. coli		E. coli, thermotol, MF, MTEC		Nitrite + Nitrate	Ammonia	TKN	TN		TP		LC50 Acute Ceriodaphnia
	MO GEO	DAILY MX	MOAV GEO	DAILY MX	MOAV GEO	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	MO AVG	DAILY MX	DAILY MN
	200 CFU/100mL	400 CFU/100mL	126 CFU/100mL	409 CFU/100mL	126 CFU/100mL	409 CFU/100mL	Req. Mon. mg/L	Req. Mon. mg/L	Req. Mon. mg/L	Req. Mon. lb/d	Req. Mon. mg/L	Req. Mon. mg/L	Req. Mon. mg/L	50 %
01/31/2008	--	--	--	--	--	--	1.1	18.	24.	291.9	25.	3.4	3.4	--
02/29/2008	--	--	--	--	--	--	1.75	10.	10.	78.3	12.	1.1	1.1	--
03/31/2008	--	--	--	--	--	--	1.9	5.4	6.5	286.9	8.	0.93	0.93	--
04/30/2008	2.7	47.	33.9	75.9	14.6	**2420.**	0.81	11.	9.	220.7	9.8	1.1	1.1	--
05/31/2008	1.49	6.	118.	**2419.6**	4.7	129.6	0.4	18.	17.	241.	17.	1.2	1.2	--
06/30/2008	12.2	152.	21.	**2419.6**	**178.5**	**2419.6**	2.3	12.	13.	160.1	16.	2.4	2.4	100.
07/31/2008	66.8	200.	23.4	330.	45.1	275.5	2.5	14.	17.	174.3	19.	3.2	3.2	--
08/31/2008	40.2	172.	88.	**1986.3**	**303.7**	**2419.6**	5.2	3.4	5.4	229.4	11.	4.1	4.1	--
09/30/2008	21.8	387.	**202.4**	**2419.6**	53.7	**1553.1**	3.6	3.3	3.9	114.1	7.6	1.5	1.5	100.
10/31/2008	13.2	260.	--	--	55.1	**2419.6**	9.5	4.2	4.8	140.1	14.	2.6	2.6	--
11/30/2008	--	--	--	--	79.9	**1986.3**	--	--	--	--	--	--	--	--
12/31/2008	--	--	--	--	--	--	11.	11.	11.	281.9	13.	1.1	1.1	--
01/31/2009	--	--	--	--	--	--	1.2	17.	20.	245.2	21.	2.1	2.1	--
02/28/2009	--	--	--	--	--	--	1.	20.	19.	200.2	20.	2.3	2.3	--
03/31/2009	--	--	--	--	--	--	1.2	12.	13.	327.	14.	1.	1.	--
04/30/2009	--	--	12.6	98.7	--	--	0.88	15.	16.	311.9	17.	1.4	1.4	--
05/31/2009	--	--	34.7	161.6	--	--	0.95	21.	19.	233.5	20.	2.2	2.2	--
06/30/2009	--	--	46.5	**1553.1**	--	--	0.86	29.	22.	183.5	22.	2.7	2.7	83.
07/31/2009	--	--	22.4	**2419.6**	--	--	2.8	13.	15.	180.1	18.	2.4	2.4	--
08/31/2009	--	--	16.4	**1553.1**	--	--	6.5	3.7	4.3	156.	11.	1.6	1.6	--
09/30/2009	--	--	8.97	67.	--	--	7.6	5.5	5.9	151.8	14.	2.4	2.4	100.
10/31/2009	--	--	35.96	**461.1**	--	--	--	--	--	--	--	--	--	--
11/30/2009	--	--	69.5	**2419.**	--	--	--	--	--	--	--	--	--	--
12/31/2009	--	--	--	--	--	--	--	--	--	--	--	--	--	--
01/31/2010	--	--	--	--	--	--	--	--	--	--	--	--	--	--
02/28/2010	--	--	--	--	--	--	0.63	16.	19.	284.	20.	1.9	1.9	--
03/31/2010	--	--	--	--	--	--	1.1	11.	12.	314.4	13.	1.1	1.1	--
04/30/2010	--	--	54.8	**2419.6**	--	--	0.41	8.7	9.1	277.3	9.5	0.65	0.65	--
05/31/2010	--	--	36.9	**410.6**	--	--	0.56	17.	20.	262.7	21.	0.54	0.54	--
06/30/2010	--	--	**386.06**	**2419.6**	--	--	1.6	24.	28.	314.4	29.	2.3	2.3	100.
07/31/2010	--	--	23.2	**770.1**	--	--	11.	2.6	4.2	122.6	15.	1.7	1.7	--

Monitoring Period End Date	Fecal Coliform		E. coli		E. coli, thermotol, MF, MTEC		Nitrite + Nitrate	Ammonia	TKN	TN		TP		LC50 Acute Ceriodaphnia
	MO GEO	DAILY MX	MOAV GEO	DAILY MX	MOAV GEO	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	MO AVG	DAILY MX	DAILY MN
	200 CFU/100mL	400 CFU/100mL	126 CFU/100mL	409 CFU/100mL	126 CFU/100mL	409 CFU/100mL	Req. Mon. mg/L	Req. Mon. mg/L	Req. Mon. mg/L	Req. Mon. lb/d	Req. Mon. mg/L	Req. Mon. mg/L	Req. Mon. mg/L	50 %
08/31/2010	--	--	**181.5**	**2419.6**	--	--	16.	10.	13.	212.5	28.	2.7	2.7	--
09/30/2010	--	--	**138.2**	**2419.6**	--	--	0.05	12.	12.	85.1	12.	1.8	1.8	100.
10/31/2010	--	--	28.96	73.8	--	--	9.5	7.2	6.7	161.5	16.	1.5	1.5	--
11/30/2010	--	--	23.5	240.	--	--	11.	13.	12.	211.	23.	1.6	1.6	--
12/31/2010	--	--	--	--	--	--	11.	5.3	8.6	360.3	27.	2.	2.	--
01/31/2011	--	--	--	--	--	--	0.25	23.	25.	291.9	25.	1.3	1.3	--
02/28/2011	--	--	--	--	--	--	0.42	31.	33.	309.1	34.	2.3	2.3	--
03/31/2011	--	--	--	--	--	--	1.3	5.3	8.3	352.3	9.6	0.6	0.6	--
04/30/2011	--	--	12.3	**648.8**	--	--	1.	16.	18.	470.3	19.	1.2	1.2	--
05/31/2011	--	--	110.6	**2419.6**	--	--	1.	14.	15.	320.3	16.	1.	1.	--
06/30/2011	--	--	29.	**816.4**	--	--	0.05	10.	12.	210.2	12.	1.2	1.2	?
07/31/2011	--	--	2.8	44.3	--	--	17.	0.32	1.	185.7	17.	1.2	1.2	--
08/31/2011	--	--	9.4	365.4	--	--	18.	1.9	3.7	179.6	22.	2.	2.	--
09/30/2011	--	--	28.8	**2419.6**	--	--	9.9	1.9	1.6	370.3	12.	1.2	1.2	100.
10/31/2011	--	--			--	--	6.7	0.09	0.9	195.6	6.7	0.89	0.89	--
11/30/2011	--	--	--	--	--	--	4.9	1.3	1.5	154.8	64.	0.74	0.74	--
12/31/2011	--	--	--	--	--	--	15.	1.7	2.4	269.	15.	0.9	1.1	--
01/31/2012	--	--	--	--	--	--	6.6	7.1	7.1	232.4	14.	1.	1.	--
02/29/2012	--	--	--	--	--	--	1.7	17.	18.	278.6	20.	3.5	3.5	--
03/31/2012	--	--	--	--	--	--	0.91	25.	24.	377.4	25.	1.2	1.2	--
04/30/2012	--	--	--	--	--	--	1.	28.	29.	322.8	30.	1.6	1.6	--
05/31/2012	--	--	--	--	--	--	1.5	36.	35.	413.5	37.	3.1	3.1	--
06/30/2012	--	--	--	--	--	--	3.8	13.	13.	255.2	17.	0.74	0.74	70.7
07/31/2012	--	--	--	--	--	--	24.	0.3	0.05	186.1	24.	1.3	1.3	--
08/31/2012	--	--	--	--	--	--	30.	0.46	1.	227.7	30.	1.7	1.7	--
09/30/2012	--	--	--	--	--	--	27.	1.4	1.	236.4	27.	3.2	3.2	100.
Minimum	1.49	6.	2.8	44.3	4.7	129.6	0.05	0.09	0.05	78.3	6.7	0.54	0.54	70.7
Maximum	66.8	387.	386.06	2419.6	303.7	2420.	30.	36.	35.	470.3	64.	4.1	4.1	100.
Average	22.63	174.86	64.28	1295.40	91.91	1702.91	5.73	11.69	12.52	243.33	19.22	1.74	1.74	94.86

PART B2 – OUTFALL 002

Monitoring Period End Date	BOD5				TSS				Flow		TRC		pH		TP	
	MO AVG	WKLY AVG	DAILY MX	MO AV MN	MO AVG	WKLY AVG	DAILY MX	MO AV MN	MO AVG	DAILY MX	MO AVG	DAILY MX	MIN	MAX	MO AVG	DAILY MX
	30 mg/L	45 mg/L	Req. Mon. mg/L	85 %	30 mg/L	45 mg/L	Req. Mon. mg/L	85 %	Req. Mon. MGD	Req. Mon. MGD	.05 mg/L	.05 mg/L	6.5 SU	8.3 SU	Req. Mon. mg/L	Req. Mon. mg/L
01/31/2008	15.4	30.1	25.	90.5	10.7	13.7	44.	93.8	0.07	0.25	--	--	6.7	7.	3.4	3.4
02/29/2008	10.1	15.3	15.3	87.2	8.	9.5	16.6	92.3	1.4	3.2	--	--	**6.4**	6.9	1.1	1.1
03/31/2008	20.2	42.1	70.5	**68.8**	13.7	22.2	46.	**79.**	2.25	4.64	--	--	6.5	6.9	0.9	0.93
04/30/2008	13.7	20.	21.5	85.3	9.5	24.9	27.5	91.8	0.92	2.02	0.	0.03	6.6	6.9	1.4	1.8
05/31/2008	13.7	21.3	33.3	90.5	8.8	13.2	30.5	94.5	0.27	2.09	0.	0.01	6.7	7.1	1.8	2.8
06/30/2008	25.	39.1	49.2	85.3	13.	33.	45.	95.2	0.006	0.017	--	--	6.8	7.	2.4	2.4
07/31/2008	12.2	12.2	12.2	93.7	11.8	16.5	18.	91.8	0.05	0.13	--	--	6.8	6.9	--	--
08/31/2008	20.8	31.2	36.6	**79.5**	12.9	13.9	22.5	90.1	0.3	0.86	0.01	0.03	6.6	6.8	4.1	4.1
09/30/2008	11.	13.5	13.7	90.4	5.9	16.5	16.5	95.6	0.19	1.2	0.01	0.01	**6.4**	6.9	1.5	1.5
10/31/2008	21.4	39.3	39.3	**83.**	10.4	16.2	28.	93.	0.03	0.04	--	--	6.7	6.8	--	--
11/30/2008	17.2	17.3	21.	88.5	9.	10.	12.	94.2	1.4	2.	0.02	0.05	6.5	6.8	1.45	1.5
12/31/2008	14.2	18.8	30.6	88.4	9.1	13.6	39.	91.7	1.3	3.5	--	--	6.5	7.	2.	2.1
01/31/2009	21.4	21.3	22.9	**83.4**	10.2	11.5	14.	91.7	0.1	0.2	--	--	6.7	6.9	--	--
02/28/2009	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
03/31/2009	9.	12.3	19.	92.5	7.	7.6	12.6	94.4	0.19	0.8	--	--	6.7	7.	1.	1.
04/30/2009	10.5	13.5	13.6	92.3	7.4	8.4	11.	94.8	0.05	0.18	--	--	6.7	7.	1.4	1.4
05/31/2009	16.3	17.3	19.9	88.	11.7	22.	18.	92.6	0.03	0.15	0.01	0.01	6.7	7.	2.2	2.2
06/30/2009	12.7	14.2	17.	89.7	5.	7.6	7.6	96.7	0.502	2.6	0.01	0.02	6.6	7.	1.3	1.3
07/31/2009	8.3	8.9	9.2	91.7	5.9	7.1	19.	95.9	0.051	0.113	0.01	0.01	6.7	7.	--	--
08/31/2009	10.9	10.9	10.9	90.	4.9	5.	6.	96.6	0.042	0.093			6.6	7.	--	--
09/30/2009	10.2	12.	12.5	94.2	4.9	6.2	8.4	97.	1.27	1.48	0.02	0.04	6.7	7.2	2.7	2.9
10/31/2009	20.6	34.6	44.4	89.1	10.1	15.8	24.	95.3	1.29	1.88	0.	**0.5**	6.5	7.1	2.5	3.
11/30/2009	20.4	27.2	40.	86.7	12.	13.7	21.	92.3	1.41	1.81	0.01	0.04	6.6	7.	1.8	2.1
12/31/2009	**31.3**	40.7	51.	**79.1**	12.6	17.2	38.5	90.6	1.61	2.72			6.5	6.9	1.6	2.2
01/31/2010	16.4	23.4	25.6	89.6	6.2	7.1	13.5	96.4	1.26	1.7			6.7	7.1	2.	2.4
02/28/2010	--	--	--	--	10.1	10.1	13.5		--	--			6.5	6.9	--	--
03/31/2010	13.3	15.7	27.	86.3	9.6	11.4	28.	91.7	0.4	3.1			**6.3**	6.9	1.1	1.2
04/30/2010	8.8	11.1	12.1	91.1	6.7	8.	27.	94.4	0.52	2.06	0.01	0.02	**6.4**	6.9	0.65	0.65
05/31/2010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
06/30/2010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
07/31/2010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
08/31/2010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
09/30/2010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/31/2010	--	--	--	--	6.6	6.6	6.6	96.7	0.171	0.171	--	--	6.9	6.9	--	--
11/30/2010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/31/2010	--	--	--	--	--	--	--	--	0.43	0.96	--	--	**6.4**	6.8	--	--
01/31/2011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
02/28/2011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
03/31/2011	9.5	11.4	16.7	**84.**	11.5	16.2	30.5	86.6	1.6	4.4	--	--	**6.**	6.9	0.66	0.83
04/30/2011	11.7	11.7	12.1	85.7	11.3	11.7	13.5	88.4	0.41	1.75	0.	0.	6.5	7.1	0.8	0.8
05/31/2011	6.8	6.8	7.5	92.1	4.4	4.5	5.4	95.8	0.31	1.34	0.	0.01	6.7	7.1	--	--

Monitoring Period End Date	BOD5				TSS				Flow		TRC		pH		TP	
	MO AVG	WKLY AVG	DAILY MX	MO AV MN	MO AVG	WKLY AVG	DAILY MX	MO AV MN	MO AVG	DAILY MX	MO AVG	DAILY MX	MIN	MAX	MO AVG	DAILY MX
	30 mg/L	45 mg/L	Req. Mon. mg/L	85 %	30 mg/L	45 mg/L	Req. Mon. mg/L	85 %	Req. Mon. MGD	Req. Mon. MGD	.05 mg/L	.05 mg/L	6.5 SU	8.3 SU	Req. Mon. mg/L	Req. Mon. mg/L
06/30/2011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
07/31/2011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
08/31/2011	18.9	18.9	18.9	**79.9**	16.1	16.1	21.	87.1	0.65	1.5	0.	0.	**6.4**	6.8	--	--
09/30/2011	14.4	14.4	20.7	**76.8**	7.1	7.1	9.	93.9	0.37	2.32	0.01	0.04	6.5	6.6	1.2	1.2
10/31/2011	4.	4.	4.	**77.8**	6.2	6.2	9.	92.6	0.29	1.02	0.	0.01	**6.2**	6.8	0.89	0.89
11/30/2011	--	--	--	--	--	--	--	--	0.05	0.25	0.03	0.04	6.9	7.	--	--
12/31/2011	8.8	8.8	10.4	92.5	4.9	4.9	6.4	96.5	0.16	1.49	--	--	**6.**	6.3	0.78	0.78
01/31/2012	--	--	--	--	--	--	--	--	0.07	0.27	--	--	**6.3**	7.3	--	--
02/29/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
03/31/2012	--	--	--	--	--	--	--	--	0.04	0.07	--	--	6.8	7.2	--	--
04/30/2012	--	--	--	--	--	--	--	--	0.06	0.06	--	--	6.9	6.9	--	--
05/31/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
06/30/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
07/31/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
08/31/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
09/30/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	4.	4.	4.	68.8	4.4	4.5	5.4	79.	0.01	0.02	0.	0.	6.	6.3	0.65	0.65
Maximum	31.3	42.1	70.5	94.2	16.1	33.	46.	97.	2.25	4.64	0.03	0.5	6.9	7.3	4.1	4.1
Average	14.52	19.37	23.75	86.78	9.01	12.43	20.26	92.97	0.55	1.4	0.01	0.05	6.57	6.94	1.64	1.79

Monitoring Period End Date	Fecal Coliform		E. coli		E. coli, thermotol, MF, MTEC		Nitrite plus Nitrate		TKN	TN		LC50 Acute Ceriodaphnia	NOEL Chronic Ceriodaphnia
	MO GEO	DAILY MX	MOAV GEO	DAILY MX	MOAV GEO	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MN	DAILY MN
	200 #/100mL	400 #/100mL	126 CFU/100mL	409 CFU/100mL	126 CFU/100mL	409 CFU/100mL	Req. Mon. mg/L	Req. Mon. mg/L	Req. Mon. mg/L	Req. Mon. lb/d	Req. Mon. mg/L	100 %	Req. Mon. %
01/31/2008	--	--	--	--	--	--	1.1	18.	24.	26.3	25.	--	--
02/29/2008	--	--	--	--	--	--	1.75	10.	10.	250.2	12.	--	--
03/31/2008	--	--	--	--	--	--	1.9	5.4	6.5	286.9	8.	100.	100.
04/30/2008	1.85	8.	--	--	450.5	2419.6	0.81	11.	9.	88.8	9.8	--	--
05/31/2008	1.52	8.	--	--	121.99	2419.6	0.4	18.	17.	10.63	17.	--	--
06/30/2008	--	--	--	--	--	--	2.3	12.	13.	1.3	16.	--	--
07/31/2008	--	--	--	--	--	--	0.	--	--	--	--	--	--
08/31/2008	--	--	--	--	--	--	5.2	3.4	5.4	56.4	11.	--	--
09/30/2008	50.	50.	--	--	209.8	209.8	3.6	3.3	3.9	2.2	7.6	--	--
10/31/2008	--	--	--	--	--	--	--	--	--	--	--	--	--
11/30/2008	17.6	22.	--	--	1393.1	1733.	12.	4.8	5.	241.	17.	--	--
12/31/2008	--	--	--	--	--	--		16.	14.	232.7	15.	100.	100.
01/31/2009	--	--	--	--	--	--						--	--
02/28/2009	--	--	--	--	--	--	--	--	--	--	--	--	--
03/31/2009	--	--	--	--	--	--	1.2	12.	13.	65.6	14.	100.	100.
04/30/2009	--	--	--	--	--	--	0.88	15.	16.	20.	17.	--	--
05/31/2009	--	--	2419.6	2419.6	--	--	0.95	21.	19.	3.3	20.	--	--
06/30/2009	--	--	325.5	325.5	--	--	2.1	12.	13.	324.3	15.	--	--
07/31/2009	--	--	--	--	--	--	--	--	--	--	--	--	--
08/31/2009	--	--	--	--	--	--	--	--	--	--	--	--	--
09/30/2009	--	--	41.8	2419.6	--	--	11.	10.	9.5	144.9	20.	--	--
10/31/2009	--	--	50.44	2419.6	--	--	7.2	5.8	7.	162.3	14.	--	--
11/30/2009	--	--	128.4	2419.6	--	--	5.5	11.	13.	235.7	18.	--	--
12/31/2009	--	--	--	--	--	--	3.4	14.	14.	248.1	17.	100.	100.
01/31/2010	--	--	--	--	--	--	1.4	15.	16.	208.4	17.	--	--
02/28/2010	--	--	--	--	--	--	--	--	--	--	--	--	--
03/31/2010	--	--	--	--	--	--	1.1	11.	12.	49.9	13.	100.	50.
04/30/2010	--	--	3.38	2419.6	--	--	0.41	8.7	9.1	42.5	9.5	--	--
05/31/2010	--	--	--	--	--	--	--	--	--	--	--	--	--
06/30/2010	--	--	--	--	--	--	--	--	--	--	--	--	--
07/31/2010	--	--	--	--	--	--	--	--	--	--	--	--	--
08/31/2010	--	--	--	--	--	--	--	--	--	--	--	--	--
09/30/2010	--	--	--	--	--	--	--	--	--	--	--	--	--
10/31/2010	--	--	--	--	--	--	--	--	--	--	--	--	--
11/30/2010	--	--	--	--	--	--	--	--	--	--	--	--	--
12/31/2010	--	--	--	--	--	--	--	--	--	--	--		
01/31/2011	--	--	--	--	--	--	--	--	--	--	--		
02/28/2011	--	--	--	--	--	--	--	--	--	--	--		
03/31/2011	--	--	--	--	--	--	1.3	5.3	8.3	146.5	9.6	100.	50.
04/30/2011	--	--	1880.8	2419.6	--	--	--	--	--	--	--	--	--
05/31/2011	--	--	942.3	1732.9	--	--	--	--	--	--	--	--	--

Monitoring Period End Date	Fecal Coliform		E. coli		E. coli, thermotol, MF, MTEC		Nitrite plus Nitrate		TKN	TN		LC50 Acute Ceriodaphnia	NOEL Chronic Ceriodaphnia
	MO GEO	DAILY MX	MOAV GEO	DAILY MX	MOAV GEO	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MN	DAILY MN
	200 #/100mL	400 #/100mL	126 CFU/100mL	409 CFU/100mL	126 CFU/100mL	409 CFU/100mL	Req. Mon. mg/L	Req. Mon. mg/L	Req. Mon. mg/L	Req. Mon. lb/d	Req. Mon. mg/L	100 %	Req. Mon. %
06/30/2011	--	--	--	--	--	--	--	--	--	--	--	--	--
07/31/2011	--	--	--	--	--	--	--	--	--	--	--	--	--
08/31/2011	--	--	**866.4**	**866.4**	--	--	--	--	--	--	--	--	--
09/30/2011	--	--	**325.2**	**2429.6**	--	--	9.9	1.9	1.6	76.1	12.	--	--
10/31/2011	--	--	--	--	--	--	6.7	0.09	0.9	27.9	6.7	--	--
11/30/2011	--	--	**238.2**	238.2	--	--	--	--	--	--	--	--	--
12/31/2011	--	--	--	--	--	--	5.3	1.7	2.4	95.7	7.7	--	--
01/31/2012	--	--	--	--	--	--	--	--	--	--	--	--	--
02/29/2012	--	--	--	--	--	--	--	--	--	--	--	--	--
03/31/2012	--	--	--	--	--	--	--	--	--	--	--	--	--
04/30/2012	--	--	--	--	--	--	--	--	--	--	--	--	--
05/31/2012	--	--	--	--	--	--	--	--	--	--	--	--	--
06/30/2012	--	--	--	--	--	--	--	--	--	--	--	--	--
07/31/2012	--	--	--	--	--	--	--	--	--	--	--	--	--
08/31/2012	--	--	--	--	--	--	--	--	--	--	--	--	--
09/30/2012	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	1.52	8.	3.38	238.2	121.99	209.8	0.	0.09	0.9	1.3	6.7	100.	50.
Maximum	50.	50.	2419.6	2429.6	1393.1	2419.6	12.	21.	24.	324.3	25.	100.	100.
Average	17.74	22.	656.55	1828.2	543.85	1695.5	3.5	9.86	10.5	121.91	13.96	100.	83.33

PART B3 – SUM OF OUTFALLS 001 AND 002

Monitoring Period End Date	BOD5		TSS		Flow		
	MO AVG	DAILY MX	MO AVG	DAILY MX	MO AVG	DAILY MX	ANNL AVG
	951 lb/d	1426 lb/d	951 lb/d	1426 lb/d	Req. Mon. MGD	Req. Mon. MGD	3.8 MGD
01/31/2008	163.6	403.7	155.9	997.5	1.5	2.2	1.9
02/29/2008	298.	545.	216.	595.	4.5	8.4	2.
03/31/2008	624.	**1823.**	439.	1189.	6.	10.	2.1
04/30/2008	290.3	528.4	198.2	733.9	3.5	5.6	2.
05/31/2008	172.3	361.	112.7	330.7	1.9	3.1	1.9
06/30/2008	246.1	580.5	136.9	470.4	1.206	1.117	1.9
07/31/2008	227.3	439.1	166.3	379.5	1.25	1.63	1.8
08/31/2008	333.	763.	163.	469.	1.9	3.7	1.8
09/30/2008	161.6	230.2	93.9	357.8	1.9	4.3	1.8
10/31/2008	240.6	588.5	135.1	350.3	1.33	1.84	1.8
11/30/2008	219.8	304.7	112.7	191.8	1.4	2.	1.8
12/31/2008	293.7	612.5	197.7	780.6	3.4	6.3	1.9
01/31/2009	332.	638.	187.8	854.	1.8	2.8	2.
02/28/2009	154.8	221.5	72.9	163.	1.4	1.9	1.8
03/31/2009	161.7	294.7	127.7	212.7	2.39	3.8	1.7
04/30/2009	159.	231.2	112.7	165.1	1.85	2.38	1.6
05/31/2009	279.3	442.4	187.5	360.3	1.53	2.25	1.6
06/30/2009	187.	326.1	72.7	115.1	2.1	2.42	1.7
07/31/2009	151.9	227.7	86.5	364.5	1.65	2.71	1.7
08/31/2009	132.9	199.7	60.8	120.1	1.54	2.49	1.7
09/30/2009	105.5	150.1	55.3	77.1	1.2	1.5	1.6
10/31/2009	217.8	385.4	110.7	280.2	1.29	1.88	1.6
11/30/2009	239.	483.7	142.1	257.1	1.41	1.81	1.6
12/31/2009	409.2	697.6	167.4	500.9	1.61	2.72	1.6
01/31/2010	202.9	311.7	83.3	360.3	1.6	3.7	1.6
02/28/2010	218.8	280.2	156.	405.3	2.37	4.66	1.6
03/31/2010	342.6	578.	236.2	871.5	3.3	8.6	1.6
04/30/2010	185.6	237.9	145.8	185.6	3.12	6.86	1.7
05/31/2010	148.1	251.5	108.2	413.7	1.4	1.6	1.7
06/30/2010	292.4	580.5	184.7	950.8	1.2	1.4	1.7
07/31/2010	131.4	202.2	77.7	146.	0.96	1.19	1.6
08/31/2010	104.3	188.5	53.4	186.1	0.88	1.1	1.55
09/30/2010	84.1	129.2	24.7	56.	0.83	1.2	1.52
10/31/2010	171.9	364.3	103.	303.6	1.46	2.37	1.52
11/30/2010	269.2	444.4	159.6	274.	1.4	1.8	1.41
12/31/2010	113.1	324.3	88.6	232.	2.31	4.46	1.5
01/31/2011	308.	1009.	200.	917.	1.3	1.8	1.5
02/28/2011	183.5	236.	83.8	182.8	1.25	1.99	1.48
03/31/2011	263.3	752.1	341.1	1236.	5.4	10.1	1.56
04/30/2011	511.3	1233.5	249.5	689.3	3.21	6.95	1.58
05/31/2011	179.5	287.7	110.4	253.4	2.71	5.34	1.67
06/30/2011	230.8	444.5	135.	281.5	1.7	2.1	1.71
07/31/2011	81.9	124.1	56.	99.7	1.31	1.67	1.74

Monitoring Period End Date	BOD5		TSS		Flow		
	MO AVG	DAILY MX	MO AVG	DAILY MX	MO AVG	DAILY MX	ANNL AVG
	951 lb/d	1426 lb/d	951 lb/d	1426 lb/d	Req. Mon. MGD	Req. Mon. MGD	3.8 MGD
08/31/2011	177.5	427.7	195.	805.6	2.08	6.1	1.78
09/30/2011	231.6	863.2	165.4	375.3	2.97	7.32	1.9
10/31/2011	182.4	296.1	157.	319.8	3.29	6.02	2.1
11/30/2011	132.9	184.6	89.2	205.5	2.35	3.15	2.14
12/31/2011	128.2	258.4	244.2	419.4	2.76	5.99	2.2
01/31/2012	197.5	363.5	140.1	203.5	1.99	2.71	2.25
02/29/2012	187.2	513.5	187.2	685.1	2.11	1.56	2.28
03/31/2012	215.3	343.8	156.9	331.	1.68	2.15	2.28
04/30/2012	276.3	634.1	108.6	337.6	1.38	1.89	1.97
05/31/2012	531.2	1274.6	218.6	736.8	1.34	1.55	1.88
06/30/2012	199.1	427.8	402.7	936.7	1.4	2.03	1.86
07/31/2012	88.8	130.6	80.1	446.2	0.96	1.44	1.83
08/31/2012	72.3	130.1	39.6	90.2	1.01	1.87	1.8
09/30/2012	224.8	720.1	122.3	410.3	1.08	1.42	1.67
Minimum	72.3	124.1	24.7	56.	0.83	1.1	1.41
Maximum	624.	1823.	439.	1236.	6.	10.1	2.28
Average	222.2	456.6	147.6	432.7	2.	3.4	1.8

PART B4 – METALS DATA (from WET test reports)

		Effluent							Background						
Test Date	**River**	**Al**	**Cd**	**Cu**	**Pb**	**Ni**	**Zn**	**Hardness**	**Al**	**Cd**	**Cu**	**Pb**	**Ni**	**Zn**	**Hardness**
6/13/2008	**Connecticut**	0.14	0	0.016	0	0	0.025	106	0.162	--	0.003	0	0.001	0.004	45
9/16/2008	**Connecticut**	0.033	0	0.008	0	0	0.029	75.6	0.171	0	0.004	0	0	0.005	34.3
6/10/2009	**Connecticut**	0	0	0.006	0	0.002	0.022	102	0.038	--	0.002	0	0	0	35.2
9/17/2009	**Connecticut**	0	0	0.008	0	0	0.025	95.8	0.06	0	0	0	0	0.002	42.4
6/16/2010	**Connecticut**	0	0	0.012	0.019	0	0.028	105	0.085	0	0.002	0	0	0.002	33.4
9/29/2010	**Connecticut**	0	0	0.01	0	0	0.026	104	0.059	0	0.007	0	0.001	0.009	53.1
6/8/2011	**Connecticut**	0.085	0	0.033	0	0.002	0.052	105	0.401	0	0.005	0	0.001	0.013	40.4
9/27/2011	**Connecticut**	0.009	0	0.0073	0	0.0012	0.02	79.4	0.623	0.0003	0.0052	0.0014	0.0019	0.0132	33.4
6/13/2012	**Connecticut**	0.075	0	0.0185	0.001	0.0014	0.0355	85.8	0.258	0	0.0042	0.0007	0.0012	0.0056	28.9
9/12/2012	**Connecticut**	0	0	0.0146	0	0.0015	0.0678	90	0.072	0	0.0007	0	0.0007	0.0038	43.7
Maximum		0.14	0	0.033	0.019	0.002	0.0678	106	0.623	0.0003	0.007	0.0014	0.0019	0.0132	53.1
Average		0.0342	0	0.013	0.0020	0.0008	0.0330	94.9	0.1929	0	0.0033	0.0002	0.0007	0.00576	38.98
Median		0.0045	0	0.011	0	0.0006	0.027	98.9	0.1235	0	0.0035	0	0.001	0.0045	37.8
3/24/2008	**Manhan**	0.04	0	0.009	0	0.003	0.018	73.1	0.185	0	0.003	0	0.002	0.008	23.9
12/16/2008	**Manhan**	0.032	0	0.006	0	0	0.015	67.3	0.426	0	0.001	0	0	0.005	22.8
3/18/2009	**Manhan**	0.043	0	0.005	0.004	0.002	0.02	84.6	0.21	0	0	0	0	0.023	30.7
12/14/2009	**Manhan**	0	0	0.01	0	0.001	0.023	83.5	0.508	0	0.003	0	0.001	0.008	31.4
3/15/2010	**Manhan**	0.01	0	0.007	0	0	0.02	83.4	0.956	0	0.002	0	0.002	0.011	17.2
3/14/2011	**Manhan**	0.067	0	0.0079	0.0009	0.0009	0.0189	76.4	0.992	0	0.003	0.001	0.0014	0.0089	19.1
Maximum		0.067	0	0.01	0.004	0.003	0.023	84.6	0.992	0	0.003	0.001	0.002	0.023	31.4
Average		0.032	0	0.007	0.001	0.001	0.019	78.050	0.546	0	0.002	0	0.001	0.011	24.2
Median		0.036	0	0.00745	0	0.00095	0.01945	79.9	0.467	0	0.0025	0	0.0012	0.0085	23.4

Attachment C – Nitrogen Loads

NH, VT, MA Discharges to Connecticut River Watershed

NAME	NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN (lbs/day)[4]	Exp. Date
Bethlehem	NH0100501		0.19	19.6	31.1	
Charlestown	NH0100765		0.38	19.6	62.1	
Claremont	NH0101257		1.60	14.0[6]	186.8	2005
Colebrook	NH0100315		0.22	19.6	36.0	
Groveton	NH0100226		0.49	19.6	80.1	
Woodsville	NH0100978		0.19	16.0[6]	25.4	
Hinsdale	NH0100382		0.27	19.6	44.1	
Lancaster	NH0100145		0.98	8.8[6]	71.9	2005
Lisbon	NH0100421		0.17	19.6	27.8	
Littleton	NH0100153		0.77	10.0[6]	64.2	
Newport	NH0100200		0.65	19.6	106.2	2006
Keene	NH0100790	6.0	3.47	12.7	367.5	1999
Northumberland	NH0101206		0.06	19.6	9.8	
Sunapee	NH0100544		0.35	15.5	44.7	
Troy	NH0101052		0.10	19.6	16.3	
Lebanon	NH0100366		1.87	19.0[6]	296.3	2011
Swanzey	NH0101150		0.09	19.6	14.7	
Whitefield	NH0100510		0.12	19.6	19.6	
Winchester	NH0100404		0.23	19.6	37.6	
Hanover	NH0100099		1.5	19.6	245.2	
			13.70		**1,787.4**	
Bellows Falls	VT010013	1.40[5]	0.61	21.0[6]	~~1~~06.8	
Bethel	VT0100048	0.12[5]	0.12	19.6	19.6	
Bradford	VT0100803	0.14[5]	0.14	19.6	22.9	
Brattleboro	VT010064	3.00[5]	1.64	20.0[6]	273.6	2009
Bridgewater	VT0100846	0.04[5]	0.04	19.6	6.5	
Canaan	VT0100625	0.18[5]	0.18	19.6	29.4	
Cavendish	VT0100862	0.15[5]	0.15	19.6	24.5	
Chelsea	VT0100943	0.06[5]	0.06	19.6	9.8	
Chester	VT010081	0.18[5]	0.18	19.6	29.4	
Danville	VT0100633	0.06[5]	0.06	19.6	9.8	
Lunenberg	VT0101061	0.08[5]	0.08	19.6	13.1	
Hartford	VT0100978	0.30[5]	0.3	19.6	49.0	
Ludlow	VT0100145	0.70[5]	0.36	15.5	46.5	
Lyndon	VT0100595	0.75[5]	0.75	19.6	122.6	2007
Putney	VT0100277	0.08[5]	0.08	19.6	13.1	
Randolph	VT0100285	0.40[5]	0.4	19.6	65.4	
Readsboro	VT0100731	0.75[5]	0.75	19.6	122.6	2007
Royalton	VT0100854	0.07[5]	0.07	19.6	11.4	

NAME	NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN (lbs/day)[4]	Exp. Date
ST. Johnsbury	VT0100579	1.60	1.14	12.0[6]	114.1	2009
Saxtons River	VT0100609	0.10[5]	0.1	19.6	16.3	
Sherburne Fire Dist.	VT0101141	0.30[5]	0.3	19.6	49.0	
Woodstock WWTP	VT0100749	0.05[5]	0.05	19.6	8.2	
Springfield	VT0100374	2.20	1.25	12.0[6]	125.1	2003
Hartford	VT0101010	1.22[5]	0.97	30.0[6]	242.7	2006
Whitingham	VT0101109	0.01[5]	0.01	19.6	1.6	
Whitingham Jacksonville	VT0101044	0.05[5]	0.05	19.6	8.2	
Cold Brook Fire Dist.	VT0101214	0.05[5]	0.05	19.6	8.2	
Wilmington	VT0100706	0.14[5]	0.14	19.6	22.9	
Windsor	VT0100919	1.13[5]	0.45	19.6	73.6	
Windsor-Weston	VT0100447	0.02[5]	0.02	19.6	3.3	
Woodstock WTP	VT0100757	0.45[5]	0.45	19.6	73.6	
Woodstock-Taftsville	VT0100765	0.01[5]	0.01	19.6	1.6	
			10.96		**1724.4**	
Huntington	MA0101265	0.20[5]	0.12	19.6	19.6	
Russell	MA0100960	0.24	0.16	19.6	26.2	
Westfield	MA0101800	6.10[5]	3.78	20.4	643.1	2005
Woronoco Village	MA0103233	0.02	0.01	19.6	1.6	
Charlemont	MA0103101	0.05[5]	0.03	19.6	4.9	
Greenfield	MA0101214	3.20	3.77	13.6	427.6	2007
Monroe	MA0100188	0.02	0.01	19.6	1.6	
Old Deerfield	MA0101940	0.25[5]	0.18	9.2	13.8	
Shelburne Falls	MA0101044	0.25[5]	0.22	16.9	31.0	
Amherst	MA0100218	7.10	4.28	14.1	503.3	2005
Barre	MA0103152	0.30[5]	0.29	26.4	63.8	
Belchertown	MA0102148	1.00	0.41	12.7	43.4	
Easthampton	MA0101478	3.80	3.02	19.6	493.7	2000
Hadley	MA0100099	0.54	0.32	25.9	69.1	
Hatfield	MA0101290	0.50[5]	0.22	15.6	28.6	
Holyoke	MA0101630	17.50[5]	9.70	8.6	695.7	2005
Montague	MA0100137	1.83[5]	1.60	12.9	172.1	2006
Northampton	MA0101818	8.60[5]	4.40	22.1	811.0	2005
Northfield School	MA0032573	0.45	0.10	19.6	16.3	
Northfield	MA0100200	0.28	0.24	16.8	33.6	

NAME	NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN (lbs/day)[4]	Exp. Date
South Deerfield	MA0101648	0.85	0.70	7.9	46.1	
South Hadley	MA0100455	4.20[5]	3.30	28.8	792.6	2005
Sunderland	MA0101079	0.50[5]	0.19	8.7	13.8	
Athol	MA0100005	1.75[5]	1.39	17.2	199.4	2007
Erving #2	MA0101052	2.70[5]	1.80	3.2	48.0	2007
Erving #1	MA0101516	1.02[5]	0.32	29.3	78.2	
Erving #3	MA0102776	0.01	0.01	19.6	1.6	
Gardner	MA0100994	5.00[5]	3.70	14.6	450.5	2007
Orange	MA0101257	1.10[5]	1.20	8.6	86.1	
Royalston	MA0100161	0.04[5]	0.07	19.6	11.4	
Templeton	MA0100340	2.80[5]	0.40	26.4	88.1	
Winchendon	MA0100862	1.10[5]	0.61	15.5	78.9	
Chicopee	MA0101508	15.50[5]	10.0	19.4	1,618.0	2010
Hardwick W	MA0102431	0.04[5]	0.01	12.3	1.0	
Hardwick G	MA0100102	0.23[5]	0.14	14.6	17.0	
N Brookfield	MA0101061	0.76[5]	0.62	23.1	119.4	2005
Palmer	MA0101168	5.60[5]	2.40	18.8	376.3	2005
Spencer	MA0100919	1.08[5]	0.56	13.6	63.5	
Ware	MA0100889	1.00[5]	0.74	9.4	58.0	
Warren	MA0101567	1.50	0.53	14.1	62.3	
Springfield			45.4	4.3	1,628.1	2006
			104.05		**9,938.3**	

1. Design flow – typically included as a permit limit in MA and VT but not in NH.

2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.

3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.

4. Current total nitrogen load.

5. Flow limit is based on an annual average rather than a monthly average.

6. Effluent total nitrogen data from USGS study.

Attachment D – Example Calculation of Reasonable Potential Determination (Outfall 001)

The following is an example for determining reasonable potential, using aluminum (Al) and the relevant water quality criteria, for Outfall 001. For Al, the resultant in-stream concentration (C_r) is calculated as follows:

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

where:

Q_d = effluent flow (design flow = 2.0 mgd = 3.09 cfs)
C_d = effluent metals concentration, in ug/L (95th percentile, see calculation below)
Q_S = stream flow upstream (7Q10 upstream = 1810 cfs)
C_S = background in-stream metals concentration, in ug/L (median, see Attachment B4)
Q_r = resultant in-stream flow, after discharge ($Q_S + Q_d$ = 1813.1 cfs)
C_r = resultant in-stream concentration, in ug/L

The 95th percentile estimated effluent daily maximum concentration (C_d) is calculated as follows:

See Attachment B for the effluent results of the toxicity measurements for Al. Since the sample size for aluminum as well as the other metals from Outfall 001 in this fact sheet is not less than 10, the 95th percentile of the effluent data is calculated using EPA's *Technical Support Document For Water Quality-based Toxics Control* (TSD) chapter 3 and box 3-2, as well as Appendix E "Lognormal Distribution and Permit Limit Derivations" of the TSD. Also, note that non-detects are considered to be equal to 0.

In this case, the 95th percentile effluent concentration for aluminum is 191.6 ug/l.

Hence, the resultant in-stream aluminum concentration is:

C_r = [(3.09 cfs)(191.6 ug/l) + (1810 cfs)(123.5 ug/l)] / 1813.1 cfs = **123.5 ug/l**

Reasonable potential is then determined by comparing this resultant downstream concentration with the relevant criterion. In this case, the acute criterion is 750 ug/l and the chronic criterion is 87 ug/l. Since 123.5 ug/l is less than 750 ug/l but greater than 87 ug/l, there is no reasonable potential for an acute (daily maximum) limit but there is reasonable potential for a chronic (monthly average) aluminum limit.

The monthly average limit would then be determined by rearranging the above mass balance to solve for the effluent concentration (C_d), as follows:

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

The terms would be the same as above with the exception of the resultant in-stream concentration (C_r) being replaced with the relevant criterion.

However, since the background median concentration is greater than the chronic criterion in this case, the calculated limit would be lower than the criterion, and potentially a negative number. In such cases, the monthly average limit is to be set at the relevant criterion. Hence, the monthly average aluminum limit is **87 ug/l**.

Attachment E – Example Calculation of Reasonable Potential Determination (Outfall 002)

The following is an example for determining reasonable potential, using aluminum (Al) and the relevant water quality criteria, for Outfall 002. For aluminum (Al), the resultant in-stream concentration (C_r) is calculated as follows:

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

where:

Q_d = effluent flow (design flow = 1.8 mgd = 2.78 cfs)
C_d = effluent metals concentration, in ug/L (95th percentile, see calculation below)
Q_S = stream flow upstream (7Q10 upstream = 30 cfs)
C_S = background in-stream metals concentration, in ug/L (median, see Attachment B)
Q_r = resultant in-stream flow, after discharge ($Q_S + Q_d$ = 32.8 cfs)
C_r = resultant in-stream concentration, in ug/L

The 95th percentile estimated effluent daily maximum concentration (C_d) is calculated as follows:

The results of the toxicity measurements of Al are:

Date	River	Al (mg/l)
3/24/2008	Manhan	0.04
12/16/2008	Manhan	0.032
3/18/2009	Manhan	0.043
12/14/2009	Manhan	0
3/15/2010	Manhan	0.01
3/14/2011	Manhan	0.067
Maximum		0.067
Average		0.032
Median		0.036

See TSD chapter 3 and box 3-2 for a more detailed description of the steps below:

Step 1) The maximum value of these samples is 0.067 mg/l (67 ug/l).
Step 2) CV = 0.6, when there are less than 10 measurements.
Step 3) Using table 3-2 in the TSD, the reasonable potential multiplication factor (RPMF) for the 95% percentile is 2.1. (6 samples with CV=0.6)
Step 4) The 95th percentile of the distribution is the maximum effluent value multiplied by the RPMF: 67 ug/l * 2.1 = 140.7 ug/l

In this permit (for Outfall 002) all the metal sample sizes are less than 10. However, if the number of samples were greater than 10, then EPA uses box 3-2 , as well as Appendix E "Lognormal Distribution and Permit Limit Derivations" of the TSD. Also, note that non-detects are considered to be equal to 0.

Hence, the resultant downstream concentration is:

C_r = [(2.78 cfs)(140.7 ug/l) + (30 cfs)(467 ug/l)] / 32.78 cfs = **439.3 ug/l**

Reasonable potential is then determined by comparing this resultant downstream concentration with the relevant criteria. In this case, the acute criterion is 750 ug/l and the chronic criterion is 87 ug/l. Since 439.3 ug/l is less than 750 ug/l but greater than 87 ug/l, there is no reasonable potential for an acute (daily maximum) limit but there is reasonable potential for a chronic (monthly average) aluminum limit.

The monthly average limit would then be determined by rearranging the above mass balance to solve for the effluent concentration (C_d), as follows:

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

The terms would be the same as above with the exception of the resultant in-stream concentration (C_r) being replaced with the relevant criterion.

However, since the background median concentration is greater than the chronic criterion in this case, the calculated limit would be lower than the criterion, and potentially a negative number. In such cases, the monthly average limit is to be set at the relevant criterion. Hence, the monthly average aluminum limit is **87 ug/l**.

Attachment F – Endangered Species

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

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

EPA is monitoring regulatory activities regarding the protection of Atlantic sturgeon (*Acipenser oxyrinchus*). The following information was taken from a NMFS Letter to EPA, dated September 6, 2011, concerning the repermitting of the Easthampton WWTP.

> "On October 6, 2010, NMFS published two proposed rules to list five distinct population segments (DPS) of Atlantic sturgeon under the ESA. NMFS is proposing to list four DPSs as endangered (New York Bight, Chesapeake Bay, Carolina and South Atlantic) and one DPS of Atlantic sturgeon as threatened (Gulf of Maine DPS). Once a species is proposed for listing, as either endangered or threatened, the conference provisions of the ESA may apply (see ESA Section 7(a)(4) and 50 CFR 402.10). As stated at 50 CFR402.1O, "Federal agencies are required to confer with NMFS on any action which is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat."
>
> "Atlantic sturgeon have some potential to travel up the mainstem of the Connecticut River into the state of Massachusetts. Atlantic sturgeon are a longlived, late maturing, estuarine-dependent, anadromous species, feeding predominantly on benthic invertebrates (ASSRT 2007). They have been historically reported in the Connecticut River as far upstream as Hadley, MA. However, significant evidence that Atlantic sturgeon moved past Enfield, CT into the upper Connecticut River was previously rare since this species tends to remain in the lower river in the range of the salt wedge (River mile 6-16) (Savoy and Shake 1993). In 2006, an adult Atlantic sturgeon was observed in the spillway lift at the Holyoke Dam, providing some indication that this species may move further upstream into the freshwater reaches of the Connecticut River. However, extensive sampling and the lack of any strong evidence of Atlantic sturgeon spawning indicates that the presence of this species in the vicinity of the discharges is unlikely."

Based on the above information and EPA's assessment, the only endangered species potentially influenced by the reissuance of this permit is the shortnose sturgeon (*Acipenser brevirostrum*). It is EPA's preliminary determination that the operation of this facility, as governed by the permit action, is not likely to adversely affect the species of concern. It is our position that this permit action does not warrant a formal consultation under Section 7 of the ESA. The reasoning to support this position follows.

A. Environmental Setting

Effluent from the Easthampton WWTP is discharged to the segment MA34-04 of the Connecticut River and the segment MA34-11 of the Manhan River, both of which are classified in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00 as a Class B - warm water fishery. Class B waters are designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other crucial functions, and for primary and secondary contact recreation. The Standards define a warm water fishery as waters in which the maximum mean monthly temperatures generally exceed 68° F (20° C) during the summer months and are not capable of sustaining a year-round population of cold water stenothermal aquatic life.

B. Outfall Descriptions

Outfall 001 discharges to the mainstem of the Connecticut River and is located approximately 31 miles downstream of the Turners Falls Dam and approximately 6.5 miles upstream from the Holyoke Dam. The main effluent pipe is approximately 2.1 miles long and discharges to the Connecticut River by gravity. The outfall is located near shore, just downstream of the confluence of the Connecticut and Manhan Rivers. The Connecticut River is approximately 500 feet wide in the vicinity of the discharge. The current expected dilution factor in the Connecticut River is 308 (see Section IV of this Fact Sheet). During periods when discharge flows exceed the capacity of Outfall 001, flow is discharged to the Manhan River through Outfall 002. The hydraulic capacity of Outfall 001 varies based on the hydraulic regime in the Connecticut River.

C. Shortnose Sturgeon Information

Update information presented in this section on the life history and known habitat of shortnose sturgeon (SNS) in the Connecticut River was obtained from, among other sources, "The Connecticut River IBI Electrofishing NMFS Biological Opinion, Connecticut and Merrimack River Bioassessment Studies" (NMFS BO, July 30, 2009) and the Draft Endangered Species Act Section 7 Consultation Biological Opinion (BO) for the Holyoke Hydroelectric Project (Federal Energy Regulatory Commission (FERC) Permit #2004), issued to FERC by NOAA Fisheries on January 27, 2005 (NMFS BO 2005). Information dealing with the potential effects of pollutants on SNS was obtained from, among other sources, a detailed ESA response letter from NMFS to EPA regarding the Montague Water Pollution Control Facility, dated September 10, 2008 (Montague Letter).

Information gathered from a variety of sources confirms the presence of shortnose sturgeon in the Connecticut River. The population is largely divided by the Holyoke Dam, although limited successful downstream passage does occur. Modifications to the dam are currently ongoing to ensure the safe and successful upstream and downstream passage of fish, including shortnose sturgeon, at the Dam (Montague Letter).

The Holyoke Dam separates shortnose sturgeon in the Connecticut River into an upriver group (above the Dam) and a lower river group that occurs below the Dam to Long Island Sound. The abundance of the upriver group has been estimated by mark-recapture techniques using Carlin tagging (Taubert 1980) and PIT tagging (Kynard unpublished data). Estimates of total adult abundance calculated in the early 1980s range from 297 to 516 in the upriver population to 800 in the lower river population. Population estimates conducted in the l990s indicated populations in the same range. The total upriver population estimates ranged from 297 to 714 adult shortnose sturgeon, and the size of the spawning population was estimated at 47 and 98 for the years 1992 and 1993 respectively. The lower Connecticut River population estimate for

sturgeon >50 cm TL was based on a Carlin and PIT tag study from 1991 to 1993. A mean value of 875 adult shortnose sturgeon was estimated by these studies. Savoy estimated that the lower river population may be as high as 1000 individuals, based on tagging studies from 1988-2002. It has been cautioned that these numbers may overestimate the abundance of the lower river group because the sampled area is not completely closed to downstream migration of upriver fish (Kynard 1997). Other estimates of the total adult population in the Connecticut River have reached 1200 (Kynard 1998) and based on Savoy's recent numbers the total population may be as high as 1400 fish (Montague Letter). Regardless of the actual number of SNS in the river, the effective breeding population consists of only the upriver population, as no lower river fish are successfully passed upstream at the present time. This effective breeding population is estimated at approximately 400 fish (NMFS BO 2009).

Several areas of the river have been identified as concentration areas. In the downriver segment, a concentration area is located in Agawam, MA which is thought to provide summer feeding and over-wintering habitat. Other concentration areas for foraging and over wintering are located in Hartford, Connecticut, at the Head of Tide (Buckley and Kynard 1985) and in the vicinity of Portland, Connecticut (CTDEP 1992). Shortnose sturgeon also make seasonal movements into the estuary, presumably to forage (Buckley and Kynard 1985; Savoy in press). Above the Dam, there are also several concentration areas. During summer, shortnose sturgeon congregate near Deerfield (NMFS BO), which is approximately 26 miles upstream of the facility discharge. Many SNS overwinter at Whitmore.

Two areas above Holyoke Dam, near Montague, have more consistently been found to provide spawning habitat for SNS. This spawning habitat is located at river km 190-192 and is the most upstream area of use. It is located just downstream of the species' historical limit in the Connecticut River at Turners Falls (river km 198). This area is approximately 31 miles upstream of the Easthampton discharge. Across the latitudinal range of the species, spawning adults typically travel to approximately river km 200 or further upstream where spawning generally occurs at the uppermost point of migration within a river (Kynard 1997; NMFS 1998). The Montague sites have been verified as spawning areas based on successful capture of sturgeon eggs and larvae in 1993, 1994, and 1995, that were 190 times the number of fertilized eggs and 10 times the number of embryos found in the Holyoke site (Vinogradov 1997). In seven years of study (1993-1999), limited successful spawning, as indicated by capture of embryos or late stage eggs, occurred only once (1995) at Holyoke Dam (Vinogradov 1997; Kynard et al. 1999c). Using this same measure, successful spawning occurred at Montague during 4 of 7 years. Both Montague and Holyoke sites have been altered by hydroelectric dam activities, but all information suggests that females spawn successfully at Montague, not at Holyoke Dam. Thus, it appears that most, if not all, recruitment to the population comes from spawning in the upriver segment (NMFS BO).

The effects of the Holyoke Project on the shortnose sturgeon's ability to migrate in the Connecticut River have likely adversely affected the shortnose sturgeon's likelihood of surviving in the river. An extensive evaluation of shortnose sturgeon rangewide revealed that shortnose sturgeon above Holyoke Dam have the slowest growth rate of any surveyed (Taubert 1980, Kynard 1997) while shortnose sturgeon in the lower Connecticut River have a high condition factor and general robustness (Savoy, in press). This suggests that there are growth advantages associated with foraging in the lower river or at the fresh-and salt-water interface. There are four documented foraging sites downstream of the Holyoke Dam, while only one exists upstream. The presence of the Holyoke Dam has likely resulted in depressed juvenile and adult growth due to inability to take advantage of the increased productivity of the fresh/salt water interface. This likely has negatively impacted the survival of the Connecticut River population of shortnose sturgeon and impeded recovery. This has also likely made the spawning periodicity of females greater (NMFS BO 2005).

D. Pollutant Discharges Permitted

1. Biochemical Oxygen Demand (BOD_5)

The draft permit proposes the same BOD_5 concentration limits as in the 2007 permit, which are based on the secondary treatment requirements set forth at 40 CFR 133.102 (a)(1), (2), (4) and 40 CFR 122.45 (f). The secondary treatment limitations are a monthly average BOD_5 concentration of 30 mg/l and a weekly average concentration of 45 mg/l. The draft permit also requires the permittee to report the maximum daily BOD_5 value each month, but does not establish an effluent limit. The monitoring frequency is two per week.

Shortnose sturgeon are known to be adversely affected by dissolved oxygen (DO) levels below 5 mg/L (Jenkins et. al 1994, Niklitschek 2001). The permit conditions above are designed to ensure that the discharge meets the MA SQWS for Class B waterbodies, which requires that waters attain a minimum DO of 5 mg/L. Discharges meeting these criteria are not likely to have any negative impacts on SNS.

2. Total Suspended Solids (TSS)

TSS can affect aquatic life directly by killing them or reducing growth rate or resistance to disease, by preventing the successful development of fish eggs and larvae, by modifying natural movements and migration, and by reducing the abundance of available food (EPA 1976). These effects are caused by TSS decreasing light penetration and by burial of the benthos. Eggs and larvae are most vulnerable to increases in solids.

The draft permit proposes the same TSS concentration limitations as in the 2007 permit. The average monthly and average weekly limits are based on the secondary treatment requirements set forth at 40 CFR 133.102 (b)(1), (2) and 40 CFR 122.45 (f) and are a monthly average TSS concentration of 30 mg/l and a weekly average concentration of 45 mg/l. The permittee has been able to achieve consistent compliance with those limits in the past. The draft permit requires the permittee to report the maximum TSS value each month, but does not establish a maximum daily effluent limit. The monitoring frequency is two per week.

Studies of the effects of turbid waters on fish suggest that concentrations of suspended solids can reach thousands of milligrams per liter before an acute toxic reaction is expected (Burton 1993). The studies reviewed by Burton demonstrated lethal effects to fish at concentrations of 580mg/L to 700,000mg/L depending on species. Sublethal effects have been observed at substantially lower turbidity levels. For example, prey consumption was significantly lower for striped bass larvae tested at concentrations of 200 and 500 mg/L compared to larvae exposed to 0 and 75 mg/L (Breitburg 1988 in Burton l993). Studies with striped bass adults showed that pre-spawners did not avoid concentrations of 954 to 1,920 mg/L to reach spawning sites (Summerfelt and Moiser 1976 and Combs 1979 in Burton l993). While there have been no directed studies on the effects of TSS on shortnose sturgeon, SNS juveniles and adults are often documented in turbid water. Dadswell (1984) reports that shortnose sturgeon are more active under lowered light conditions, such as those in turbid waters. (Montague Letter) As such, shortnose sturgeon are assumed to be as least as tolerant to suspended sediment as other estuarine fish such as striped bass.

As noted above, shortnose sturgeon eggs and larvae are less tolerant to sediment levels than juveniles and adults. Several studies have examined the effects of suspended solids on fish larvae. Observations in the Delaware River indicated that larval populations may be negatively affected when suspended material settles out of the water column (Hastings 1983). Larval survival studies conducted by Auld and Schubel (1978) showed that striped bass larvae tolerated 50 mg/l and 100 mg/l suspended sediment concentrations

and that survival was significantly reduced at 1000 mg/L. According to Wilber and Clarke (2001), hatching is delayed for striped bass and white perch eggs exposed for one day to sediment concentrations of 800 and 1000 mg/L, respectively (Montague Letter).

In a study on the effects of suspended sediment on white perch and striped bass eggs and larvae performed by the ACOE (Morgan et al. 1973), researchers found that sediment began to adhere to the eggs when sediment levels of over 1000 parts per million (ppm) were reached. No adverse effects to demersal eggs and larvae have been documented at levels at or below 50 mg/L (Montague Letter). This is above the highest level authorized by this permit. Based on this information, it is likely that the discharge of sediment in the concentrations allowed by the permit will have an insignificant effect on shortnose sturgeon .

3. pH

The draft permit requires that the pH of the Easthampton WWTP effluent from Outfall 001 shall not be less than 6.0 or greater than 8.3 standard units at any time and the effluent from Outfall 002 shall not be less than 6.5 or greater than 8.3 standard units at any time. Since a pH from 6.0 to 8.3 is considered harmless to most marine organisms (Ausperger 2004), no adverse effects to SNS are likely to occur as a result of a discharge meeting the above pH range.

4. Escherichia coli (E. coli)

E. coli bacteria are indicators of the presence of fecal wastes from warm-blooded animals. The primary concern regarding elevated levels of these bacteria is for human health and exposure to pathogen-contaminated recreational waters. Fecal bacteria are not known to be toxic to aquatic life. *E. coli* limits are therefore designed to ensure compliance with human health criteria and are seasonal, corresponding to the recreational use season, consistent with the MA SWQS.

5. Total Residual Chlorine

The acute and chronic water quality criteria for chlorine defined in the 2002 EPA National Recommended Water Quality Criteria for freshwater are 19 ug/l and 11 ug/l, respectively. Given the very high dilution factor of 308 at Outfall 001 of the Easthampton WWTP, the total residual chlorine limits have been calculated as 5.85 mg/l maximum daily and 3.39 mg/l average monthly. However, the Massachusetts Implementation Policy for the Control of Toxic Pollutants in Surface Waters stipulates that the maximum effluent concentration of chlorine shall not exceed 1.0 mg/l for discharges with dilution factors greater than 100. Consequently, the 2007 permit included a maximum daily effluent limitation for TRC of 1.0 mg/l and in compliance with that policy. Based upon this analysis, the TRC maximum daily limit of 1.0 mg/l is being carried forward in the draft permit, in accordance with anti-backsliding requirements. The sampling frequency has been maintained as once per day.

For Outfall 002 of the Easthampton WWTP into the Manhan River, the total residual chlorine limits have been calculated as 1.87 mg/l maximum daily and 1.08 mg/l average monthly based on a dilution factor of 98.5. Hence, the draft permit also contains maximum daily and average monthly limits of 1.0 mg/l for Outfall 002 as well. The sampling frequency has been maintained as once per day.

There are a number of studies that have examined the effects of TRC (Post 1987; Buckley 1976; EPA 1986) on fish; however, no directed studies that have examined the effects of TRC on shortnose sturgeon. The EPA has set the Criteria Maximum Concentration (CMC or acute criteria; defined in 40 CFR 131.36 as equals the highest concentration of a pollutant to which aquatic life can be exposed for a short period of

time (up to 96 hours) without deleterious effects) at 0.019 mg/L, based on an analysis of exposure of 33 freshwater species in 28 genera (EPA 1986) where acute effect values ranged from 28 ug/L for *Daphia magna* to 710 ug/L for the threespine stickleback. The CMC is set well below the minimum effect values observed in any species tested. As the water quality criteria levels have been set to be protective of even the most sensitive of the 33 freshwater species tested, it is reasonable to judge assumes that the criteria are also protective of shortnose sturgeon.

The anticipated TRC level at the outfall satisfies the EPA's ambient water quality criteria and is lower than TRC levels known to effect aquatic life. As such, the discharges of the permitted concentrations of TRC are likely to have an insignificant effect on shortnose sturgeon.

6. Nitrogen

DO levels in the Long Island Sound estuary, approximately 88 miles downstream from the Easthampton WWTP, have been determined to be impacted by nitrogen discharges from wastewater treatment plants on the Connecticut River and other tributaries. A TMDL has been developed that includes, *inter alia*, a Waste Load Allocation for Massachusetts, New Hampshire and Vermont wastewater facilities discharging to those receiving waters that is design to achieve the DO criteria. That WLA is currently being met, and the draft permit contains conditions to ensure that the WLA continues to be met by requiring optimization of nitrogen removal, in order to ensure that nitrogen loads do not increase over the 2004-2005 baseline of 16,254 lbs/day. Please see the nitrogen section of Part IV of this fact sheet for a detailed explanation.

A review of the DMRs from January 2008 through September 2012 indicate that the monthly average total nitrogen load (from Outfall 001 and 002 combined) varied from 85 lb/d to 574 lb/d with an average value of 275 lb/d (refer to Attachment B1 and B2). Note that data represents both maximum daily and average monthly values since nitrogen was measured only once per month. Since compliance with the baseline load is calculated on an annual basis, the annual average nitrogen loads were calculated as follows: 284.6 lb/d in 2008, 266.1 lb/d in 2009, 242.2 lb/d in 2010, 304.6 lb/d in 2011 and 281.1 lb/d in 2012 (Jan. through Sept. only). These loadings indicate that the facility has been under the baseline in all years except 2011 and will need to optimize nitrogen removal in order to comply with the nitrogen loading requirement in the draft permit.

In order to ensure that the aggregate nitrogen loading from out-of-basin point sources does not exceed the TMDL target of a 25 percent reduction over baseline loadings, EPA has included a condition in the draft permit requiring the permittee to evaluate alternative methods of operating its plant to optimize the removal of nitrogen, and to describe previous and ongoing optimization efforts. Specifically, Part I.F. of the draft permit requires an evaluation of alternative methods of operating the existing wastewater treatment facility in order to control total nitrogen levels, including, but not limited to, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. This evaluation is required to be completed and submitted to EPA and MassDEP within one year of the effective date of the permit, along with a description of past and ongoing optimization efforts. The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies, document the annual nitrogen discharge load from the facility, and track trends relative to previous years.

The agencies intend to annually update the estimate of all out-of-basin total nitrogen loads and may incorporate total nitrogen limits in future permit modifications or reissuances as may be necessary to address increases in discharge loads, a revised TMDL, or other new information that may warrant the incorporation of numeric permit limits. There have been significant efforts by the New England Interstate

Water Pollution Control Commission (NEIWPCC) work group and others since completion of the 2000 TMDL, which are anticipated to result in revised wasteload allocations for in-basin and out-of-basin facilities. Although not a permit requirement, it is strongly recommended that any facilities planning that might be conducted should consider alternatives for further enhancing nitrogen reduction.

7. Phosphorus

State water quality standards require any existing point source discharge containing nutrients in concentrations which encourage eutrophication or growth of weeds or algae shall be provided with the highest and best practical treatment to remove such nutrients. Phosphorus interferes with water uses and reduces instream dissolved oxygen. The draft permit includes a once per month monitoring requirement for effluent phosphorus from Outfall 001 and a total phosphorus limit of 0.82 mg/l from Outfall 002. If a Total Maximum Daily Load (TMDL) or other data demonstrates that the WWTP is contributing to eutrophication of the river, EPA and MassDEP may reopen the permit under Part II.A.4. of the permit and modify the limit. In order to modify the limit, a formal public review process would be required.

EPA has employed the Gold Book-recommended concentration (0.1 mg/l) to interpret the state's narrative standards for nutrients EPA also performed a reasonable potential analysis to determine whether, at the current effluent phosphorus concentration, there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria. EPA has taken the upstream concentration of phosphorus into account in its analysis.

Based on the reasonable potential calculation, the draft permit does not require a TP limit for Outfall 001 (Connecticut River) or Outfall 002 (Manhan River). The monthly average and daily maximum monitoring requirements for both outfalls from the 2007 permit will continue in the draft permit. Please refer to the phosphorus Section of Part IV of this fact sheet for a full discussion of the reasonable potential analysis performed.

8. *Metals*

Certain metals in water can be toxic to aquatic life, including SNS. There is a need to limit most toxic metal concentrations in the effluent where aquatic life may be impacted. An evaluation (see the Metals discussion in Part IV of this fact sheet) of the concentration of metals in the facility's effluent (from June 2008 to September 2012 toxicity testing reports) shows that there only reasonable potential for toxicity caused by aluminum in the Connecticut River and Manhan River but not any other reported metals, including cadmium, copper, lead, nickel, and zinc. To address the potential for toxicity caused by aluminum, a monthly average limit of 87 ug/l for Outfall 001 and outfall 002 has been placed in the draft permit (as described in the Metals discussion in Part IV of this fact sheet).

9. Whole Effluent Toxicity (WET)

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The MA SWQS include the following narrative statement and requires that EPA criteria established pursuant to Section 304(a)(1) 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."*

National studies conducted by the EPA have demonstrated that domestic sources contribute toxic

constituents to WWTPs. These constituents include metals, chlorinated solvents, aromatic hydrocarbons and others. Based on the potential for toxicity from domestic and industrial sources, the state narrative water quality criterion, and in accordance with EPA national and regional policy and 40 C.F.R. § 122.44(d), the draft permit includes a whole effluent acute toxicity limitation (LC_{50} = 50%). (See also "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants", 49 Fed. Reg. 9016 March 9, 1984, and EPA's "Technical Support Document for Water Quality-Based Toxics Control", September, 1991.)

Pursuant to EPA Region I policy, and MassDEP's Implementation Policy for the Control of Toxic Pollutants in Surface Waters (February 23, 1990), discharges having a dilution factors greater than 100 require acute toxicity testing two times per year and an acute LC50 limit of 50 percent. The dilution factor for the discharge from Outfall 001 is greater than 100, so in accordance with EPA and MassDEP policy the draft permit includes an LC50 limit of 50 percent and requires acute toxicity testing twice per year on the daphnid *(Ceriodaphnia dubia)*. The dilution factor for the discharge from Outfall 002 is less than 100, so in accordance with EPA and MassDEP policy the draft permit includes both an LC50 limit of 100 percent and a chronic toxicity (C-NOEC) monitoring requirement, both of which are required twice per year on the daphnid *(Ceriodaphnia dubia)*.

The permit shall be modified or alternatively revoked and reissued, to incorporate additional toxicity testing requirements, including chemical specific limits, if the results of the toxicity tests indicate the discharge causes an exceedance of any state water quality criterion. Results from these toxicity tests are considered "New Information" and the permit may be modified pursuant to 40 CFR 122.62(a)(2).

E. Finding

Based on the above analysis, including (1) the location of the Outfall 001 discharge along the west bank of a wide, channelized portion of the Connecticut River (approximately 500 feet wide); (2) the extremely high dilution factor; (3) the proposed permit limits; and (4) the minimal water quality effects of the permit action, EPA has made the preliminary determined that impacts to shortnose sturgeon from the discharge at the Easthampton WWTF, if any, will be insignificant or discountable and not likely to adversely affect shortnose sturgeon. EPA has judged that a formal consultation pursuant to Section 7 of the ESA is not required. EPA is seeking concurrence from NMFS regarding this determination through the information in this fact sheet and the draft permit, as well as a letter under separate cover.

Reinitiation of consultation will take place: (a) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) If a new species is listed or critical habitat is designated that may be affected by the identified action.

RESPONSE TO COMMENTS – AUGUST 5, 2013
REISSUANCE OF NPDES PERMIT NO. MA0101478
TOWN OF EASTHAMPTON
EASTHAMPTON WASTEWATER TREATMENT FACILITY
EASTHAMPTON, MASSACHUSETTS

From April 30, 2013 through May 29, 2013 the U.S. Environmental Protection Agency (EPA-New England) and the Massachusetts Department of Environmental Protection (MassDEP) solicited public comments on the draft National Pollutant Discharge Elimination System (NPDES) permit to be reissued to the Town of Easthampton, MA.

EPA-New England and MassDEP received comments from the Town of Easthampton, dated May 28, 2013 and from the Connecticut River Watershed Council, dated May 29, 2013. The comments, EPA's responses to those comments, and any corrections made to the public-noticed permit as a result of those comments are shown below.

A copy of the final permit may be obtained by writing or calling Michael Cobb, United States Environmental Protection Agency, 5 Post Office Square, Suite 100 (Mail Code: OEP06-1), Boston, Massachusetts 02109-3912; Telephone (617) 918-1369. Copies may also be obtained from the EPA Region 1 web site at http://www.epa.gov/region1/npdes/index.html.

I. COMMENTS FROM THE TOWN OF EASTHAMPTON

Comment I.A.

Permit Pages 2 of 19 and 4 of 19, Table A.1. *Total Residual Chlorine and E Coli Compliance dates of April 1 to November 30 for Outfalls 001 and 002*

Based on the existing NPDES permit and proposed renewal, seasonal E. Coli and Total Residual Chlorine (TRC) limits are in effect from April 1 to November 30. This seasonal timeframe is not consistent with other dischargers to the same Connecticut River segment (MA34-04), including Northampton, Hadley, Hatfield, and Sunderland, or dischargers in the next downstream segment (MA34-05), including Holyoke, South Hadley, and Chicopee. All of these dischargers have seasonal disinfection limits from April 1 through October 31. We request that Easthampton seasonal disinfection period be modified to April 1 to October 31.

Response I.A.

EPA acknowledges that the NPDES permits for the facilities listed above have bacteria limits from April 1 to October 31. However, in the 2007 permit reissuance, EPA received a comment documenting recreational uses of the Manhan River and the Oxbow, downstream of this discharge after October 31. Accordingly, EPA made the decision at that time to extend the bacteria limits for Easthampton to include the month of November, acknowledging that recreational use during the period of December 1 through March 31 is likely to be limited. EPA will carry forward these seasonal limits for Outfall 002 (Manhan River) from April 1 through November 30 in this permit reissuance to continue to be protective of all recreational uses of the receiving water and the Oxbow. However, there does not appear to be any recreational activities in the Connecticut River after October 31, and the discharge from Outfall 001 (Connecticut River) does not affect the Oxbow. Hence, the seasonal *E. coli* and TRC limits for Outfall 001

will be April 1 through October 31, consistent with other nearby facilities. Should the facility need to discharge from Outfall 002 during the month of November, the disinfection system must be operative and given adequate start-up time to comply with the bacteria limits.

Comment I.B.

Permit Pages 2 of 19 and 4 of 19, Table A.1. *New Dissolved Oxygen limit of Not Less Than 6.0 mg/L for Outfalls 001 and 002*

The Fact Sheet mistakenly noted that the dissolved oxygen requirement was continued from the existing permit. However, the Easthampton Wastewater Treatment Plant does not currently have an effluent dissolved oxygen limit. Based on the very high dilution factors (greater than 300 to the Connecticut River and almost 100 to the Manhan River), it does not appear that Easthampton's effluent dissolved oxygen has the potential to impact the in-stream dissolved oxygen concentrations and thus we believe this is the reason that the current permit does not contain a limit. We request that this error be corrected and the dissolved oxygen limit be removed from the NPDES permit.

Response I.B.

Dissolved oxygen (DO) limits were not included in the previous permit, and upon further review EPA agrees that DO limits should not be included in the final permit. Data submitted by the facility show that effluent discharge DO concentrations are less than the state water quality DO criterion (5.0 mg/L for warm water fisheries), but available information indicates that the receiving water does not violate the water quality criterion upstream or downstream of the discharges. EPA believes that discharge concentrations less than 5.0 mg/l will not cause, have the reasonable potential to cause, or contribute to violations of the state DO criteria because of the high dilution and rapid mixing of the discharges.

Comment I.C.

Permit Page 2 of 19, Table A.1 *New aluminum limit 87 ug/L*

The new aluminum limit based on a determination of "reasonable potential", as discussed in the Fact Sheet (pages 16 – 22 and Attachments B4, D, and E). The equation used to determine reasonable potential is: $Q_dC_d + Q_sC_s = Q_rC_r$. Flows in the rivers (Q_s) relative to the effluent (Q_d) are high, and the median background in-stream aluminum concentrations (C_s) in the Connecticut River and Manhan River, 123.5 ug/L and 467 ug/L, respectively, exceed the chronic criteria of 87 ug/L. Therefore, even if the effluent aluminum concentration from the WWTP (C_s) was zero, the methodology would still result in a determination of reasonable potential.

Another approach, including review of the effluent data, consideration of the treatment processes at the WWTP, and consideration of the buffering capacities of the rivers is requested. The WWTP does not add aluminum-based coagulants to the treatment process and currently has an industrial pre-treatment program in place. The WWTP is designed for secondary treatment without tertiary treatment process and chemical addition. As presented in Part B4 of Attachment B of the Fact Sheet, of the ten samples for Outfall 001 to the Connecticut River, only one exceeded the proposed limit of 87 ug/L. However, this exceedance was the oldest test result, from 6/13/2008, and may be an outlier. Half of the results were non-detect. All of the six samples of effluent to the Manhan River (Outfall 002) were less than 87 ug/L.

In addition, there is no clear detrimental effect to the receiving water, and it is burdensome for the WWTP to meet such a strict aluminum limit. The ambient water quality criteria used in the evaluation of the aluminum permit limit was based on a survey conducted in 1988 of available aluminum toxicity literature[1]. Since that time it has been shown by several aluminum speciation and toxicity studies that aluminum alone is not sufficient to cause toxicity to aquatic organisms. Rather, it is the type of aluminum species present in the water that is the key factor in determining its toxicity. Aluminum speciation, bioavailability, and toxicity are dependent on diverse water quality parameters such as the buffering capacity, dissolved organic carbon content, and pH of the water[2]. Both the Connecticut River and the Manhan River, to which the WWTP discharges, have high buffering capacities (median of 38 mg/L and 23 mg/L of hardness, respectively, according to the fact sheet). Several studies have concluded that aluminum toxicity is only present in poorly buffered streams when the pH becomes acidic resulting in increased speciation of aluminum into bioavailable and toxic forms[2].
As indicated in Footnote (L) of the table that includes the Federal Water Quality Standard of 87 ug/L, based on the acute toxicity standard for aluminum:

"There are three major reasons why the use of Water-Effect Ratios might be appropriate.

1. *The value of 87 µg/l is based on a toxicity test with the striped bass in water with pH = 6.5–6.6 and hardness <10 mg/L. Data in "Aluminum Water-Effect Ratio for the 3M Plant Effluent Discharge, Middleway, West Virginia" (May 1994) indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness are not well quantified at this time.*

2. *In tests with the brook trout at low pH and hardness, effects increased with increasing concentrations of total aluminum even though the concentration of dissolved aluminum was constant, indicating that total recoverable is a more appropriate measurement than dissolved, at least when particulate aluminum is primarily aluminum hydroxide particles. In surface waters, however, the total recoverable procedure might measure aluminum associated with clay particles, which might be less toxic than aluminum associated with aluminum hydroxide.*

3. *EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 ug aluminum/L, when either total recoverable or dissolved is measured."*

Both the Connecticut River and the Manhan River have higher buffering capacities than the 10 mg/L suggested, as indicated in the Fact Sheet.

<u>We request that the aluminum limit be removed and replaced with a requirement for monitoring only.</u> Due to the significant burden of imposing limits using inappropriate methodology, we request that imposition of any future limits be deferred until such time as a site specific study is completed, as has been the practice for the adoption of copper limits for a number of receiving streams in MA.

[1] USEPA, 1988. Ambient water quality criteria for aluminum — 1988. EPA 440/5–86–008. Washington, D.C., U.S. Environmental Protection Agency.

[2] Robert W. Gensemer & Richard C. Playle (1999): The Bioavailability and Toxicity of Aluminum in Aquatic Environments, Critical Reviews in Environmental Science and Technology, 29:4, 315-450.

Response I.C.

The analysis done in the Fact Sheet determined that there was reasonable potential for aluminum to cause or contribute to an exceedance of water quality standards. The median background aluminum concentration reported for both the Connecticut River and the Manhan River exceeded the chronic criterion of 87 ug/l. Based upon this, any discharge above the criterion would clearly contribute to this exceedance of standards and justify a permit limit. As described above, the test result dated 6/13/2008 for Outfall 001 was such an exceedance (140 ug/l > 87 ug/l). However, there was not such an exceedance for the Outfall 002 data. Hence, the permit limit remains for Outfall 001, but the limit has been removed for Outfall 002 and replaced with a quarterly monitoring requirement. This monitoring requirement is established in order to better characterize the discharge and provide a more robust data set for future permitting decisions

EPA continues to review and update its methodology for determining reasonable potential, but believes that the analysis done for this discharge was appropriate. If MassDEP chooses to develop and adopt a site-specific aluminum criterion based upon the water effects ratio (or any other site-specific criterion) using the referenced literature and site-specific conditions described in this comment, and EPA approves such a criterion, this permit may be reopened and reasonable potential for aluminum may be reevaluated.

Comment I.D.

Permit Page 7 of 19, Table A.1 Footnote 9: *Acute toxicity test for Outfall 002 during second week of March and December*

Because Outfall 002 to the Manhan River is only in use during high flow events, it may not be discharging during the second week of March and December. Therefore, we request that acute toxicity testing for Outfall 002 be required during the second week of March and December only if the outfall is active.

Response I.D.

EPA agrees that toxicity testing is only required if the outfall is active. If the discharge is not active during either of those two weeks, then toxicity testing should be done on the first day that discharge does occur following those weeks. If the discharge is not active for the remainder of the months of March or December, no toxicity test is required for that quarter. A footnote has been included in the final permit describing this requirement.

Comment I.E.

Permit Page 16 of 19, Part E.3: *Date for annual industrial pretreatment program reporting*

During renewal of the existing NPDES permit (2007), the date for submission of the Annual Industrial Pretreatment Report was accidentally moved by EPA from November 1 to March 1. We request that the date be moved back to November 1 in this renewed permit.

Response I.E.

The annual Industrial Pretreatment Report will be due on November 1, as reflected in the final permit.

Comment I.E.

Permit Page 17 of 19, Part F: *Nitrogen optimization report requirement*

The existing NPDES permit (2007) required the City to conduct a Nitrogen Optimization Study to evaluate alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen and submit a report to EPA and MassDEP. This report was submitted in November 2008 and to date neither agency has responded to the submittal. The requirements for a Nitrogen Optimization Report are repeated in this draft renewal. Since the City already completed the evaluation in 2008 and the treatment processes at the WWTP have not changed, we request that Part F. Special Conditions be modified to remove the requirement to repeat the nitrogen optimization study and eliminate the unnecessary expenditure of the City's limited funds.

Response I.F.

EPA received the City of Easthampton's Nitrogen Optimization Study report in 2008, however, these reports are not typically reviewed. The permit requirement to evaluate alternative methods of nitrogen removal is intended to benefit the City in developing its options for meeting the nitrogen requirements set forth in the permit. Based upon this recent submittal, the special condition to submit another Nitrogen Optimization Study report has been modified in the final permit. The facility is instead required to update the existing report, if necessary, and maintain a copy to be available upon request.

Comment I.F.

Permit Page 17 of 19, Part F: *Baseline loading for nitrogen*

According to the Fact Sheet:

> *"In December 2000, the Connecticut Department of Environmental Protection (CT DEP) completed a TMDL for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL included a waste load allocation (WLA) for point sources and a load allocation (LA) for non-point sources. The point source WLA for out-of-basin sources (Massachusetts, New Hampshire and Vermont wastewater facilities discharging to the Connecticut, Housatonic and Thames River watersheds) requires an aggregate 25 percent reduction from the baseline total nitrogen loading estimated in the TMDL. The baseline total nitrogen point source loadings estimated for the Connecticut, Housatonic, and Thames River watersheds were 21,672 lbs/day, 3,286 lbs/day, and 1,253 lbs/day respectively (see table below). The estimated current point source total nitrogen loadings for the Connecticut, Housatonic, and Thames Rivers respectively are 13,836 lbs/day, 2,151 lbs/day, and 1,015 lbs/day, based on recent information and including all POTWs in the watershed. The following table summarizes the estimated baseline loadings, TMDL target loadings, and estimated current loadings:*

	Basin Baseline Loading* (lbs/day)	***TMDL Target** (lbs/day)***	***Current Loading*** (lbs/day)***
Connecticut River	*21,672*	*16,254*	*13,836*

Housatonic River	*3,286*	*2,464*	*2,151*
Thames River	*1,253*	*939*	*1,015*
Totals	*26,211*	*19,657*	*17,002*

** Estimated loading from TMDL (see Appendix 3 to CT DEP "Report on Nitrogen Loads to Long Island Sound", April 1998).*

*** Reduction of 25% from baseline loading.*

**** Estimated current loading from 2004 – 2005 DMR data.*

The TMDL target of a 25 percent aggregate reduction from baseline loadings is currently being met.

According to the Fact Sheet, the baseline loading for the Easthampton WWTP used in the above analysis was 493.7 lbs/day, and 2008 loading was 284.6 lbs/day. The existing benchmark total nitrogen mass loading estimate included in Part F. Special Conditions is 284.6 lbs/day based on 2008 effluent data from the WWTP.

As summarized in the Fact Sheet, the average annual loads from 2008-2012 (partial) ranged from 242.2 lbs/day to 304.6 lbs/day; all were below the baseline load used for the TMDL calculation of 493.7 lbs/day. As discussed in the 2008 Nitrogen Optimization Report, the Easthampton WWTP does not have the ability to modify operations to removal additional nitrogen; the WWTP was designed for secondary treatment of BOD and TSS and does not include nitrification and denitrification processes. Therefore, without total nitrogen removal, effluent total nitrogen loads are expected to be largely a function of influent flows and loads. Fluctuations above the 2008 annual average are possible, as seen in 2011. Because the current loads are less than 60% of the baseline used in the TMDL, it is not expected that any of these fluctuations will exceed that baseline.

We request that total nitrogen monitoring requirements continue, but that the baseline load of 493.7 lbs/day used in the TMDL be the benchmark load for comparison rather than the 2008 load of 284.6 lbs/day since EPA has not demonstrated that the lower load is necessary to achieve compliance with the TMDL.

Response I.F.

The load of 493.7 lb/day used in the TMDL was an estimate based on average MA secondary treatment plant effluent concentrations and the average flow from this facility for 2004-2005. In order to get a more accurate assessment of the facility's nitrogen discharge, the 2007 permit required the facility to maintain the mass discharge loading of total nitrogen, based on the actual load monitored over the first year of the permit term (2008). In 2008, the facility discharged an average of 284.6 lb/day. As discussed in the Fact Sheet, the average annual loads from 2008-2012 (partial) ranged from 242.2 lb/day to 304.6 lb/day. Given the variability in the actual data, EPA has reevaluated the baseline load to be included in the final permit and decided to use **304.6 lbs/day**. This is the maximum measured annual average load (2011) during the previous permit cycle (2008-2012) and is well below the 493.7 lbs/day assumed in the 2008 permit. Hence, this load is in accordance with the TMDL and should be achievable by the facility through nitrogen optimization. The facility is required to optimize nitrogen removal to the extent necessary to maintain this load, on an annual average basis.

II. COMMENTS FROM THE CONNECTICUT RIVER WATERSHED COUNCIL

Comment II.A.

The Connecticut River in the vicinity of outfall 001 is heavily used for recreation. A busy state-owned boat launch is located on the Oxbow near Easthampton's outfall 001. Across from where the Oxbow connects with the River is a state-owned beach called Hockanum Beach (formerly called Tent City). This beach has a rope swing and a sandy area that attracts swimmers and boaters. The section upstream of the Holyoke Dam is very heavily used by all kinds of motor boaters (including jet skis).

Response II.A.

EPA acknowledges the existing uses described in this comment. The uses listed are consistent with the designated uses included in the Massachusetts Surface Water Quality Standards for Class B waters, which are "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 they shall be suitable as a source of public water supply with appropriate treatment. They 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."

Comment II.B.

The Oxbow section of the Connecticut River, into which the Manhan River flows, is heavily used by several recreational groups. The Oxbow marina is a commercial marina for motor boats. The Northampton crew team operates a row house on the Oxbow, and has community rowing programs. A water ski jump ramp lies in the Oxbow and professional water skiing teams perform in front of an audience in bleachers near the Northampton rowing building. The Easthampton Rod & Gun Club has a building on the banks of the Oxbow, and they have motor boats docked there.

Response II.B.

EPA acknowledges the existing uses described in this comment. See response II.A. above.

Comment II.C.

In 2012, CRWC volunteers conducted water quality monitoring at the Oxbow boat ramp, testing for E. coli once a week between late May and early October. Testing is resuming tomorrow for the 2013 season. Results from 2012 and 2013 are available online at www.connecticutriver.us.

Response II.C.

EPA has reviewed the data collected from 2012 and 2013 in the vicinity of the Easthampton discharge (Connecticut River Oxbow, Easthampton at State Boat Ramp). The most recent data indicates that the receiving water is currently "clean" for both swimming and boating (< 235 cfu/100ml). However, since May of 2012 five out of 22 samples indicated the river was only

"clean" for boating (between 235 and 575 cfu/ml) and two out of those 22 samples indicated the receiving water was not "clean" for swimming or boating (> 575 cfu/ml). It is unclear whether the discharge from Easthampton caused any of these elevated levels of bacteria, but the final permit requires the facility to adequately disinfect the effluent to meet E. coli limits of 126 cfu/ml (monthly average) and 409 cfu/ml (daily maximum). These limits are considered to be protective of existing uses, including both swimming and boating. EPA appreciates the CRWC volunteers who are able to conduct the referenced bacteria monitoring and make it available for public use.

Comment II.D.

CRWC supports the addition of a dissolved oxygen limit and a total recoverable aluminum limit for outfalls 001 and 002.

Response II.D.

Upon further review, the dissolved oxygen limits for both outfalls and the aluminum limit for Outfall 002 were determined to be unnecessary. Refer to responses I.B. and I.C. above.

Comment II.E.

Page 4 of the Fact Sheet indicates that the peak capacity of outfall 001 is 3.1 million gallons per day (mgd) at "normal river level." The capacity in this permit reissuance for outfall 001 is set at 3 mgd, and the capacity for outfall 002 is set at 0.8 mgd, which is the difference between the 3.8 mgd design flow and the capacity of outfall 001. We are glad to see that there has been a reduction of flows to outfall 002 since May 2010. For the record, we are not in favor of the City of Easthampton diverting the entire WWTP discharge to the Manhan River in the future, and we're not sure how this could be done without seriously degrading water quality in the Manhan River and the Oxbow.

Response II.E.

Your comments are noted and are part of the administrative record for the permit. Any increase in authorized flow to the Manhan would have to be consistent with antidegradation, to ensure that existing water quality would not be degraded.

Comment II.F.

We don't understand why the USGS gage data used for the 7Q10 calculation at 001 is a period of record 1904-2004. The most recent decade should be incorporated, and the period of time prior to installation of the U.S. Army Corps of Engineer flood control dams upstream (after the 1936 and 1938 floods) should be taken out.

Response II.F.

The 7Q10 was calculated in the 2007 permit reissuance using the data available at that time. In this permit reissuance, it was determined that the most recent data would not significantly affect the 7Q10 calculation for the Connecticut River (Outfall 001) or any relevant permit limits or requirements.

It should also be noted that the 7Q10 of the Manhan River was not used because the facility does not discharge to the Manhan River during times of low flow.

Comment II.G.

We have reviewed the Manhan River dilution factor calculation and rationale. The Fact Sheet explains that a flow of 117 cfs is being used, based on Mill River flows for the times of year that outfall 002 tends to be used. For comparison purposes, we used the map of the outfall 002 location in the Fact Sheet and USGS's Streamstats to look at calculated flow statistics for the Manhan River at that location. For one thing, the program would not calculate flow based on nearby USGS gages, because no nearby gage was within 50% of the basin size of the Manhan. That may indicate a flaw in using the nearby Mill River gage. Using regression equations, Streamstats calculated a 7Q10 of 12.6 cubic feet per second (cfs) and a D50 of 85.6 cfs. CRWC believes that using 117 cfs is not conservative enough, since it is higher than the D50 for the Manhan River at this location. We understand that outfall 002 tends to be used during high flow events, but as recently as late 2009 a blockage in 001 caused all flow to be diverted to outfall 002 for more than a month. I don't know the flow of the Manhan River during that time, but it seems entirely possible that flows may have been average for that time of year. In addition, the draft permit sets no flow limits on 002, so circumstances could change at any time and water quality would suffer. Local tributary flows also do not always mimic flow increases or decreases on the mainstem Connecticut River due to the scale of the Connecticut River. Chronic toxicity testing for outfall 002 should not be eliminated until outfall 002 is eliminated.

Response II.G.

In the Fact Sheet, EPA's reevaluation of the Manhan River low flow (for Outfall 002) was done using actual daily discharge data since May of 2010, not merely "flows for the times of year that outfall 002 tends to be used" as described in the comment above. Each day that Easthampton discharged into the Manhan River, corresponding flow data in the Mill River was determined. The minimum Mill River flow on any single day when a discharge to the Manhan River occurred was 73 cfs. This flow was extrapolated for the Manhan River based upon the drainage area of the two basins, resulting in a low flow in the Manhan River of 117 cfs. It should be noted that the drainage area of the Manhan River is 84 sq. miles and that of the Mill River is 52.6 sq. miles, within 50% of the size of the Manhan River basin. Although there is not a flow limit for Outfall 002, it is expected that under normal operation the facility will maximize flow to Outfall 001 and the limits will be protective of both receiving waters. Accordingly, a permit condition has been added to the final permit requiring the facility to maximize flow through Outfall 001.

Regarding toxicity testing for Outfall 002, EPA's policy is to require chronic toxicity testing for discharges with a dilution factor of 20 or less. As shown in the Fact Sheet, Outfall 002 to the Manhan River has a dilution factor of 98.5, well above this threshold. Hence, only acute toxicity testing is required.

Comment II.H.

The permit sets mass-based limits on BOD and TSS for the sum of outfalls 001 and 002. Since the two outfalls discharge to two different water bodies, this does not make sense. Outfall 002 discharges to the Manhan River and then the Oxbow, which is impaired for turbidity. There should be a mass-based limit specific to the Manhan that is protective of the Manhan and the Oxbow.

Response II.H.

As shown in the Fact Sheet, EPA applied secondary treatment technology-based limits for BOD and TSS (30 mg/l monthly average, 45 mg/l weekly average, and 85% removal based on 40 CFR 133.102(a), 40 CFR 133.102(b), and 40 CFR 122.45(f), respectively). The concentration-based limits were converted to mass-based limits and applied to the sum of the flow from Outfalls 001 and 002 in order to account for the total load being discharged from the facility each monitoring period. According to the commenter and the Massachusetts Year 2012 Integrated List of Waters, the Oxbow (Segment ID MA34066) is impaired for turbidity. Hence, EPA has reevaluated this discharge to determine whether it has the reasonable potential to cause or contribute to the turbidity impairment. Note that the narrative aesthetics criterion in the Massachusetts Surface Water Quality Standards states that surface waters should be "*free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.*"

Based on a review of the facility's TSS monitoring, the maximum recorded discharge into the Manhan River was 46 mg/l (03/31/2008). Dividing this effluent concentration by the dilution factor (98.5) results in a downstream TSS concentration of 0.47 mg/l (46/98.5) before entering the Oxbow. Although the criterion is narrative, EPA believes that this very small contribution of TSS into the Manhan River does not have the reasonable potential to cause or contribute to the turbidity impairment in the Oxbow. Additionally, the secondary treatment limitations for TSS are sufficient to ensure that TSS loads do not increase in the future.

Comment II.I.

We note that there have been frequent E. coli violations at both outfalls, and we would like to know how the facility plans to comply with limits better in the future, given that both outfalls are in bacteria-impaired waters.

Response II.I.

EPA acknowledges the frequent *E. coli* violations. Should the facility be unable to comply with the *E. coli* limits included in this permit reissuance through adequate disinfection, the permittee will be in violation of its NPDES permit and at risk of enforcement action and penalties. Also see response II.C above.

Comment II.J.

The reasonable potential analysis for phosphorus at outfall 002 shown on pages 15-16 in the Fact Sheet does not consider that the Manhan River discharges into the Oxbow, which is impaired for turbidity and non-native aquatic vegetation. A separate calculation that treats the Oxbow as a lake should be done.

Response II.J.

EPA agrees that the phosphorus analysis should be reevaluated to consider the presence of the Oxbow as a lake or impoundment just downstream of Outfall 002 into the Manhan River. The Fact Sheet references EPA's Quality Criteria for Water 1986 (the Gold Book) in selecting the target in-stream phosphorus concentration of 100 ug/l. However, the Gold Book also states that total phosphorus "should not exceed 50 ug/l in any stream at the point where it enters any lake or reservoir" (such as the point where the Manhan River enters the Oxbow). In this case, the analysis in the Fact Sheet demonstrates that the discharge from Outfall 002 only has the reasonable potential to result in an instream concentration of 45 ug/l (< 50 ug/l). Hence, there is no reasonable potential to contribute to a violation of water quality standards in the Manhan River or in the Oxbow, and a phosphorus limit is not required.

Comment II.K.

We would like to see Fact Sheets describe the actual reductions in I/I accomplished by the permittee since the last permit renewal. In the case of Easthampton, we understand that an unpermitted CSO was recently fixed in a sewershed that is subject to excessive inflow and infiltration and we would like to see that EPA and MassDEP checks on the progress of I/I reduction by each permittee.

Response II.K.

EPA and MassDEP are actively involved in working with municipalities to reduce I/I and unpermitted overflows. In the case of Easthampton, an Administrative Consent Order (ACO) was issued by MassDEP on April 16, 2010 regarding the elimination of two unauthorized overflows from manholes just upstream of pump stations within their sewershed. EPA confirmed with MassDEP that one of these overflows was eliminated in May of 2010 and the second was eliminated in March of 2013, in accordance with the ACO. Additionally, the City has an I/I removal plan last updated in 2008 which includes flow monitoring, TV inspection, a prioritized removal plan, a private inflow source removal program, and a public education program. In their recent application, Easthampton estimated current I/I as 1.1 MGD. EPA will continue to monitor the progress and implementation of this I/I removal plan during the coming permit cycle.