AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §§1251 et seq.; the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§ 26-53),

Town of Upton
P.O. Box 75
Upton, MA 01568

is authorized to discharge from the facility located at

Upton Wastewater Treatment Facility
43 Maple Avenue
Upton, MA 01568

to receiving water named

unnamed tributary stream of the West 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 effective date.

This permit supersedes the permit issued on March 1, 2006

This permit consists of 17 pages in Part I including effluent limitations and monitoring requirements, 25 pages in Part II including NPDES Part II Standard Conditions, and Attachment A – Freshwater Chronic Toxicity Test Procedure and Protocol (May, 2007).

Signed this day of

_____	_____
Director Office of Ecosystem Protection Environmental Protection Agency Boston, MA	Director Massachusetts Wastewater Management Program Department of Environmental Protection Commonwealth of Massachusetts Boston, MA

* Pursuant to 40 CFR 124.15(b)(3), if no comments requesting a change to the draft permit are received, the permit will become effective upon the date of signature.

PART I

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

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS[1]**	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
FLOW[2]	*********	*********	0.4 MGD	*********	Report MGD	CONTINUOUS	RECORDER
FLOW[2]	*********	*********	Report MGD	*********	*********	CONTINUOUS	RECORDER
BOD_5 [3] (May 1-October 31)	38 lbs/Day	63 lbs/Day	12 mg/l	20 mg/l	Report mg/l	1/WEEK	24-HR COMPOSITE[4]
BOD_5 [3] (November 1 - April 30)	75 lbs/Day	113 lbs/Day	22 mg/l	34 mg/l	Report mg/l	1/WEEK	24-HR COMPOSITE[4]
TSS [3] (May 1-October 31)	38 lbs/Day	63 lbs/Day	12 mg/l	20 mg/l	Report mg/l	1/WEEK	24-HR COMPOSITE[4]
TSS [3] (November 1 - April 30)	75 lbs/Day	113 lbs/Day	22 mg/l	34 mg/l	Report mg/l	1/WEEK	24-HR COMPOSITE[4]
pH RANGE[5]	6.5 - 8.3 SU (SEE PERMIT PARAGRAPH I.A.1.b.)					1/DAY	GRAB
TOTAL RESIDUAL CHLORINE[6]	*********	**********	11.2 ug/l	*********	19.4 ug/l	3/DAY	GRAB
ESCHERICHIA COLI [5,7] (April 1 - October 31)	*********	**********	126 cfu/100 ml	*********	409 cfu/100 ml	2/WEEK	GRAB
TOTAL ALUMINUM	**********	**********	88.7 ug/l	*********	765 ug/l	2/MONTH	24-HR COMPOSITE[4]
TOTAL CADMIUM[8]	**********	**********	0.19 ug/l	*********	1.3 ug/l	4/YEAR	24-HR COMPOSITE[4]
TOTAL COPPER	**********	**********	19.2 ug/l	*********	27.3 ug/l	2/MONTH	24-HR COMPOSITE[4]
TOTAL LEAD[8]	**********	**********	1.62 ug/l	*********	Report ug/l	4/YEAR	24-HR COMPOSITE[4]

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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 an unnamed tributary of the West River. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS [3]	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
TOTAL ZINC[8]	**********	**********	77.0 ug/l	*********	77.0 ug/l	4/YEAR	24-HR COMPOSITE[4]
TOTAL PHOSPHORUS (April 1 - October 31)	0.67 lbs/Day	**********	0.20 mg/l	*********	Report mg/l	1/WEEK	24-HR COMPOSITE[4]
TOTAL PHOSPHORUS (November 1 - March 31)	3.3 lbs/Day	**********	1.0 mg/l	*********	Report mg/l	1/WEEK	24-HR COMPOSITE[4]
ORTHOPHOSPHORUS (November 1 - March 31)	Report lbs/Day	**********	Report mg/l	*********	Report mg/l	1/WEEK	24-HR COMPOSITE[4]
AMMONIA-NITROGEN[9] (June 1 - September 30)	7.7 lbs/Day	**********	2.3 mg/l	*********	*********	1/WEEK	24-HR COMPOSITE[4]
AMMONIA-NITROGEN[9] (October 1 - May 31)	21.0 lbs/Day	*********	6.3 mg/l	*********	Report mg/l	1/WEEK	24-HR COMPOSITE[4]
TOTAL KJELDAHL NITROGEN[9]	Report lbs/Day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HR COMPOSITE[4]
TOTAL NITRATE[9]	Report lbs/Day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HR COMPOSITE[4]
TOTAL NITRITE[9]	Report lbs/Day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HR COMPOSITE[4]
TOTAL NITROGEN[9,10]	Report lbs/Day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HR COMPOSITE[4]

Sampling Location: Samples shall be taken after dechlorination chemical addition point and prior to discharge.

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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 an unnamed tributary stream to the West River. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS [3]	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
WHOLE EFFLUENT TOXICITY [11, 12, 13, 14]	Acute $LC_{50} \geq 100\%$ Chronic C-NOEC $\geq 98\%$					4/YEAR	24-HOUR COMPOSITE
Hardness[15]	******	******	******	******	Report mg/l	4/YEAR	24-HR COMP
Ammonia Nitrogen as N[15]	******	******	******	******	Report mg/l	4/YEAR	24-HR COMP
Total Recoverable Aluminum[15]	******	******	******	******	Report mg/l	4/YEAR	24-HR COMP
Total Recoverable Cadmium[15]	******	******	******	******	Report mg/l	4/YEAR	24-HR COMP
Total Recoverable Copper[15]	******	******	******	******	Report mg/l	4/YEAR	24-HR COMP
Total Recoverable Nickel[15]	******	******	******	******	Report mg/l	4/YEAR	24-HR COMP
Total Recoverable Lead[15]	******	******	******	******	Report mg/l	4/YEAR	24-HR COMP
Total Recoverable Zinc[15]	******	******	******	******	Report mg/l	4/YEAR	24-HR COMP

Footnotes:

1. Effluent sampling shall be of the discharge and shall be collected at the point specified on page 3. 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.

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. Sampling required for influent and effluent.

4. 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.

5. Required for State Certification.

6. 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.

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.

8. The minimum level (ML) for lead and cadmium is defined as 0.5 ug/l. This value is the minimum level for this metal using the Furnace Atomic Absorption analytical method (EPA Method 220.2). Compliance or non-compliance with limits lower than this minimum level will be determined based on the ML from this method, or another approved method that has an equivalent or lower ML, one of which must be used. Sample results of 0.5 ug/l or less shall be reported in accordance with the DMR instructions. The sampling from the WET testing may be used to satisfy this requirement.

9. Total ammonia nitrogen, total Kjeldahl nitrogen, nitrite nitrogen, and nitrate nitrogen samples shall be collected concurrently. Total nitrogen may be calculated from the sum of total Kjeldahl nitrogen, nitrate and nitrite.

10. The permittee shall operate the treatment facility to reduce the discharge of total nitrogen to the maximum extent possible, using existing treatment equipment at the facility. **Within one (1) year after the effective date** of the permit, the permittee shall submit a report to EPA and the MassDEP that describes the measures it has taken to enhance the removal of nitrogen by its treatment facility and summarizes the effectiveness of these measures.

11. The permittee shall conduct chronic (and modified acute) toxicity tests *four* times per year. The chronic test may be used to calculate the acute LC_{50} at the 48 hour exposure interval. The permittee shall test the daphnid, Ceriodaphnia dubia, only. Toxicity test samples shall be collected during the months of January, April, July and October. The test results shall be submitted by the last day of the month following the completion of the test. The results are due February 28, May 31, August 31 and November 30, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit.

Test Dates Second Week in	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**	**Chronic Limit C-NOEC**
January April July October	February 28 May 31 August 31 November 30	Ceriodaphnia dubia (daphnid)	≥ 100%	≥ 98%

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.

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

13. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction, based on a statistically significant difference from dilution control, at a specific time of observation as determined from hypothesis testing. As described in the EPA *WET Method Manual EPA 821-R-02-013, Section 10.2.6.2*, all test results are to be reviewed and reported in accordance with EPA guidance on the evaluation of the concentration-response relationship. The **98**% or greater" limit is defined as a sample which is composed of **98**% (or greater) effluent, the remainder being dilution water.

14. 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**.

15. For each whole effluent toxicity test the permittee shall report on the appropriate discharge monitoring report, (DMR), the concentrations of the hardness, ammonia nitrogen as nitrogen, total recoverable aluminum, cadmium, copper, lead, nickel, and zinc 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 shall not be less than 6.5 or greater than 8.3 at any time.

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

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

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

f. The 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 MassDEP 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 twentyfour (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 (0.32 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.

   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

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

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.

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

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

disposal.

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

E. MONITORING AND REPORTING

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 Operations 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 – Central Region
Bureau of Resource Protection (Municipal)
627 Main Street
Worcester, MA 01608

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.

F. 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 CMR 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.

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

FACT SHEET

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

NPDES PERMIT NUMBER: **MA0100196**

PUBLIC NOTICE START AND END DATES: March 8, 2013 – April 6, 2013

NAME AND MAILING ADDRESS OF APPLICANT:

Town of Upton
P.O. Box 75
Upton, MA 01568

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Upton Wastewater Treatment Facility
43 Maple Avenue
Upton, MA 01568

RECEIVING WATER(S): **Unnamed Tributary Stream of West River**

RECEIVING WATER CLASSIFICATION(S): **Class B – Warm Water Fishery (Blackstone River Watershed)**

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

The applicant applied to the U.S. Environmental Protection Agency (EPA) on November 11, 2010 for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge into the designated receiving water. The current permit expired on May 1, 2011; it has been administratively continued and remains in effect. This draft permit will expire five (5) years after the effective date.

The facility is engaged in the collection and treatment of municipal wastewater. The discharge is from an advanced wastewater treatment plant and the effluent is discharged to an unnamed stream that is a tributary of the West River.

2. Description of Discharge

A quantitative description of the wastewater treatment plant discharge in terms of significant effluent parameters based on recent monitoring data is shown on attached **Table 1** of this fact sheet.

3. Receiving Water Description

The Upton Wastewater Treatment Plant (WWTP) discharges into an unnamed tributary of the West River. The West River is a major tributary of the Blackstone River. It flows south from Grafton, MA through Upton, MA and Northbridge, MA and joins the Blackstone River in Uxbridge, MA. The Blackstone River then joins the Seekonk River in Pawtucket, Rhode Island. The unnamed tributary of the West River, and the West River are a part of the Blackstone River Basin and the Narragansett Bay Basin.

The unnamed tributary is classified as a Class B warm water fishery by the Massachusetts Department of Environmental Protection (MassDEP or the Department) in the Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(3)(b). The Massachusetts Surface Water Quality Standards (MA SWQS) describes Class B waters as having the following uses: (1) a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical function, (2) primary and secondary contact recreation, (3) a source of public water supply (i.e., where designated and with appropriate treatment), (4) suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses, and (5) will have consistently good aesthetic value.

The MA SWQS (314 CMR 4.02) define a warm water fishery as waters in which the maximum mean monthly temperature generally exceeds 68° Fahrenheit (20° Celsius) during the summer months and are not capable of supporting a year-round population of cold water stenothermal aquatic life.

The West River has been identified as impaired under Section 303(d) of the Federal Clean Water Act (CWA), which requires states to identify those waterbodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such, require the development of total maximum daily loads (TMDL). The segment of the West River downstream of the Upton discharge (51-12) appears on the state's 2010 303(d) list with water quality impairments attributed to metals, nutrients, pH, organic enrichment/low dissolved oxygen, and salinity/TDS/chlorides. MassDEP, *Massachusetts Year 2010 Integrated List of Water* (2010). In addition, West River Pond, a 37 acre impoundment located in Uxbridge, MA, downstream of the Upton WWTF, has been considered part of this segment since 2008 and has noted impairment caused by noxious plants (exotic species), although these are not considered to be caused by a pollutant. Exotic species in the West River Pond have included fanwort (*cabomba caroliniana),* watermilfoil (*Miriophyllum sp.*) and water chestnut (*Trapa* natans). MassDEP, *Blackstone River Watershed 2003-2007 Water Quality Assessment Report* (2010).[1]

4. Limitations and Conditions

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

[1] Water chestnuts in particular are a significant problem on the West River downstream in Uxbridge. The Blackstone River Watershed Association has coordinated mechanical harvesting and hand-pulling events for a number of years. http://www.thebrwa.org/Membership/2012_newsletter.pdf

5. Permit Basis: Statutory and Regulatory Authority

Congress enacted the CWA "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into the waters of the United States from any point source, except as authorized by specified permitting sections of the CWA, one of which is Section 402. *See* CWA §§ 301(a), 402(a).

Section 402(a) established one of the CWA's principal permitting programs, the National Pollutant Elimination System (NPDES). Under this section of the CWA, EPA may "issue a permit for the discharge of any pollutant, or combination of pollutants" in accordance with certain conditions. *See* CWA § 402(a). NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. *See* CWA § 402(a)(1)-(2).

Section 301 of the CWA provides for two types of effluent limitations to be included in NPDES permits: "technology-based" limitations and "water quality-based" limitations. *See* §§ 301, 304(b); 40 CFR §§ 122, 125, 131. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 402 and 301(b) of the CWA. For publicly owned treatment works (POTWs), technology-based requirements are effluent limits based on secondary treatment as defined in 40 CFR 133.102.

EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where necessary to maintain or achieve federal or state water quality standards. Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The MA SWQS at 314 CMR 4.00 establish requirements for the regulation and control of toxic constituents and also require that EPA criteria, established pursuant to Section 304 (a) of the CWA, shall be used unless a site specific criteria is established. EPA is required to limit any pollutant or pollutant parameter that is or may be discharged at a level that caused, has reasonable potential to cause or contributes to an excursion above any water quality criterion. Massachusetts regulations similarly require that its permits contain limitations that are adequate to assure the attainment and maintenance of the water quality standards of the receiving waters as assigned in the MA SWQS. *See* 314 CMR 3.11(3). EPA is required to obtain certification from the state in which the discharge is located that all water quality standards or other applicable requirements of state law, in accordance with Section 301(b)(1)(C) of the CWA, are satisfied, unless the state waives certification.

Section 401(a)(2) of the CWA and 40 CFR § 122.44(d)(4) require EPA to condition NPDES permits in a manner that will ensure compliance with the applicable water quality standards of a "downstream affected state," in this case Rhode Island. The Rhode Island Water Quality Regulations (RI WQR) also establish designated uses of the State's waters, criteria to protect those uses, and an antidegradation provision to ensure that existing uses and high quality waters are protected and maintained.

In addition, 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 Section 402(o) and 40 CFR §122.44(l). States are also required to develop antidegradation policies pursuant to 40 CFR § 131.12. No lowering of water quality is allowed, except in accordance with the antidegradation policy.

6. Explanation of the Permit's Effluent Limitation(s)

6.1 Facility Information

The Upton WWTP is a 0.4 MGD municipal advanced wastewater treatment facility that discharges to an unnamed tributary of the West River. Wastewater treatment processes consist of aeration, secondary settling, phosphorus removal, sand filtration, chlorine contact and sodium bisulfite dechlorination. Figure 2 contains a flow process diagram for the facility. The sludge from this facility is transported by a licensed hauler to the Synagro incineration facility at Woonsocket, RI. The Upton WWTP does not currently serve any industrial users, and this facility does not anticipate serving any industrial users during the life of this permit. The facility's location is shown on Figure 1 of this fact sheet.

The permittee was issued an administrative compliance order by EPA on July 19, 2004 to address aluminum, ammonia and copper permit limitation exceedances. The Order included a requirement to prepare detailed evaluations and explanations of the specific causes of the violations of the aluminum and ammonia limitations in the NPDES permit. The Town was required to develop an Aluminum Report and an Ammonia Report including interim and long-term corrective measures to eliminate the ammonia-nitrogen violations and an implementation schedule for achieving and maintaining compliance with their NPDES permit. In addition, the Order included a requirement to submit an annual Copper Optimization Report detailing the actions taken during the prior calendar year to identify sources of copper entering the POTW and to further optimize the removal of copper from the POTW effluent. The Order established an interim average monthly copper limit of 20 ug/l.

All of the Order's required reports, submissions, and construction schedules have been met by the Town. The Town's final construction and process upgrades were completed by 2008. Since that time, the facility's DMRs document a dramatic decrease in ammonia discharges (averaging 0.13 mg/l in 2010-11 as compared to over 1 mg/l in 2006-2007) as well as consistent compliance with the aluminum and interim copper limits.

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

A. FLOW

The 12 month rolling average flow limitation of 0.4 MGD in the current permit has been maintained in the draft permit. This is the design flow of the facility found in Form 2A, Part A, Section a.6. of the permit application. The draft permit requires continuous flow measurement, and also requires reporting of the average monthly and maximum daily flows.

The dilution factor for the facility is calculated from 7Q10 flow and plant design flow. The

7Q10 flow at the facility is calculated based on the 7Q10 flow of 0.5 cfs at the low flow partial record USGS streamgage 01111150, West River at Pleasant Street, West Upton. USGS, *Gazetteer of Hydrologic Characteristics of Streams in Massachusetts – Blackstone River Basin*, WRI 84-4286 (1985). A drainage area adjustment is applied as follows.

Given:
7Q10 at USGS gage 01111150 = 0.5 cfs
Drainage area at USGS gage 01111150 = 14.7 sq mi
Drainage area at discharge = 0.36 sq mi

Then:
7Q10 at discharge = 0.5 cfs x 0.36 sq mi/14.7 sq mi = 0.12 cfs (0.008 MGD)

Dilution factor = (7Q10 flow + facility design flow)/facility design flow
= (0.008 MGD + 0.4 MGD)/0.4 MGD = 1.02

B. CONVENTIONAL POLLUTANTS

Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS)
Section 301(b)(1)(B) of the CWA requires publicly owned treatment works (POTWs) to have achieved effluent limitations based upon **secondary treatment** by July 1, 1977. The secondary treatment requirements are set forth at 40 CFR Part 133, and include monthly average and weekly average concentration limitations on BOD_5 and TSS as well as monthly average percent removal limitations on BOD_5 and TSS. The monthly average percent removal limits for BOD_5 and TSS of 85 percent or greater are included in the draft permit. The BOD_5 and TSS concentration limits in the draft permit are more stringent than required by the secondary treatment requirements.

The BOD_5 and TSS concentration limits in the draft permit are the same as the limits in the current permit. The current permit limits were made more stringent in connection with the 2002 reissuance, in order to maintain the same mass loading of BOD_5 and TSS at the increased flow limit of 0.4 MGD that was included in that permit. Specifically, the authorized mass loadings at the previous design flow of 0.3 were calculated, and then lower concentration limits were back-calculated using the increased design flow of 0.4 MGD. The mass limits are the same as in the current permit and were calculated using the concentration limits and the flow limit of 0.4 MGD.

There have been no violations of BOD or TSS monthly average or weekly average concentration limits during the period of January 2010 through June 2012.The long term average for 2010-2011 was 1.2 mg/l BOD and 0.8 mg/l TSS. The maximum daily concentration reported was 3.7 mg/l and 5.2 mg/l for BOD and TSS, respectively. The BOD and TSS removal percentages have both averaged 98 % and 99 %, respectively with no violations during this same time period (See Table One for details).

pH
The draft permit includes pH limitations that are required by MA SWQS at 314 CMR 4.00, and are at least as stringent as pH limitations set forth at 40 C.F.R. §133.102(c). Class B waters shall

be in a range of 6.5 through 8.3 standard units and not more than 0.5 standard units outside of the normally occurring range [314 CMR 4.05 (3)(b)3]. There shall be no change from background conditions that would impair any use assigned to this class. The monitoring frequency is once (1) per day.

Bacteria

Limitations for bacteria in the existing permit are based upon state water quality standards for Massachusetts. There were no violations of the fecal coliform limit in the period 2010 to 2011. Violations of the limits in 2012 were traced to the presence of a bird nest located above the effluent channel, after the chlorine contact chamber, which resulted in contamination from bird droppings in the effluent samples. The bird nest has been removed and violations have not recurred.

The limits are modified in the Draft Permit to reflect the *E. coli* criteria in the revisions to the MA SWQS, 314 CMR 4.05(3)(b)4, approved by EPA in 2007. The monthly average limitation in the draft permit is 126 colony forming units (cfu) per 100 ml, and shall be expressed as a monthly geometric mean. The daily maximum limitation in the draft permit is 409 cfu/100 ml. These limitations are a State certification requirement and are consistent with EPA guidance recommending that no dilution be considered in establishing permit limits for discharges to rivers designated for primary contact recreation. *EPA Memorandum re: Initial Zones of Dilution for Bacteria in Rivers and Streams Designated for Primary Contact Recreation*, November 12, 2008. The monitoring frequency is maintained at three times per week.

C. NON-CONVENTIONAL POLLUTANTS

Ammonia-Nitrogen

The draft permit continues the current permit's warm weather (May 1 through October 31) average monthly concentration limit for ammonia-nitrogen of 2.3 mg/l. The limit in the current permit was calculated to maintain ammonia nitrogen loading authorized by the 1995 permit using that permit's concentration limit of 3.0 mg/l and the pre-upgrade design flow of 0.3 MGD, and then back-calculating the concentration limit for the upgraded plant using the new design flow of 0.4 MGD. This limit is continued to ensure that receiving water quality is maintained. Biological decomposition of ammonia-nitrogen uses dissolved oxygen, and if the mass discharge were increased in the warm weather months this could result in lowering of instream concentrations of dissolved oxygen. Based on the USEPA (1999) ammonia guidance document, an instream ammonia criteria of 3.21 mg/l at a pH of 7 and temperature of 24° C (75° F) is recommended if early life states of sensitive vertebrate species are present.

There were no violations of the warm weather limit between January 2010 and November 2012 (see Table 1). The average value for the warm weather monthly average concentration was 0.12 mg/l (n = 16). Monthly average ammonia-nitrogen values for the warm weather (May through October) ranged between 0.02 mg/l to 0.27 mg/l.

The cold weather limit has been modified from the current permit due to an apparent error in the calculation in the previous fact sheet. The prior limit was based on a calculation of winter

30Q10 flow at the facility of 0.08 cfs. This was incorrectly calculated.[2] The corrected and updated calculation is shown below:

West River, at the West Hill Dam gage station, Uxbridge, MA:
30Q10 flow = 2.5 cfs = (2.5 x 0.646272 MGD/cfs) = 1.61 MGD (October - April)
Drainage Area = 27.8 square miles

Unnamed Stream, at the Point of Discharge, Upton, MA:
Drainage Area = 0.36 square miles
30Q10 flow = 2.5 cfs x 0.36 sq mi/27.8 sq mi = 0.043 cfs =
(0.043 cfs x 0.646272 MGD/cfs) = 0.028 MGD (October - April)
30Q10 dilution factor (winter)=(Unnamed Tributary 30Q10 + design flow) / design flow
= (0.028 + 0.4) / 0.4= 1.07

Ammonia-Nitrogen Cold weather Limit:
Critical instream temperature = 10 0C (winter instream temperature)
Critical instream pH = 7.0 (winter instream pH)
Chronic Ammonia Criteria (Chronic Criterion for Early Life Stages Present) = 5.91

Therefore, the Ammonia-Nitrogen winter limit:
(30Q10 winter dilution factor x instream ammonia criteria)
(1.07 x 5.91) = 6.3 mg/l

The Ammonia-Nitrogen winter limit is therefore revised to 6.3 mg/l.

Total Nitrogen

Nutrients such as phosphorus and nitrogen are necessary for the growth of aquatic plants and animals to support a healthy ecosystem. In excess, however, nutrients can contribute to fish disease, brown tide, algae blooms and low dissolved oxygen (DO). Excessive nutrients, generally phosphorus in freshwater and nitrogen in salt water, stimulate the growth of algae, which could start a chain of events detrimental to the health of the aquatic ecosystem. The algae prevent sunlight from penetrating through the water column. As the algae decay, they depress the DO levels in the water. Fish are in turn deprived of oxygen. Excessive algae may also cause foul smells and decrease aesthetic value, which could affect swimming and recreational uses.

It has been documented that the Providence and Seekonk Rivers (in Rhode Island) are impacted by low DO levels and high phytoplankton concentrations that stem from excessive nitrogen loadings. Significant areas of these rivers suffer from hypoxic (low DO) and anoxic (no DO) conditions and violate water quality Federal and State (Rhode Island) water quality standards. In its Section 305(b) report, the State of Rhode Island Department of Environmental Management (RIDEM) assessed the health of its receiving waters. Significant nutrient impairments to shellfish

2 The 30Q10 calculation was based on a winter 30Q10 flow of 3.33 cfs at the West Hill Dam gage, with a drainage area of 27.8 square miles. Adjusting for the relative drainage area at the facility (0.36 sq. mi) gives: 3.33 cfs x 0.36 sq mi/27.8 sq mi = 0.043 cfs – not 0.08 cfs. For the new calculation EPA has updated the winter 30Q10 at West Hill Dam using the full period of record, as we have been unable to verify the source of the 3.33 cfs value. The updated value is 2.5 cfs.

harvesting and swimming, due to nitrogen, were noted in the Providence River, Seekonk River and Upper Narragansett Bay. These waters were given the highest priority consistent with the State of RI's goal of restoring such waters.

RIDEM conducted water quality modeling to estimate the nitrogen loading that was being contributed to Upper Narragansett Bay from Massachusetts sources. It was found that WWTFs contributed over 90% of the nitrogen loading to the MA/RI state line. The analysis also demonstrated that a significant portion of the overall nitrogen loading discharged to Narragansett Bay originates from WWTF effluents in Massachusetts. In particular, based on an annual estimate of nitrogen flux into the Upper Narragansett Bay from rivers, the Blackstone River was estimated to be the largest contributor of nitrogen. EPA has therefore included nitrogen monitoring in all POTW permits in the Blackstone River watershed and has included nitrogen limits in permit reissuances where necessary to ensure that discharges do not cause or contribute to nitrogen impairments.

According to 40 CFR §122.44(d)(4), EPA should include any requirements in permits to "conform to applicable water quality requirements under Section 401(a)(2) of the CWA when the discharge affects a State other than the certifying State." Based on the Upton DMR data and monitoring conducted in the Blackstone River in support of RIDEM's assessment efforts, the nitrogen input from the Upton WWTF to the main stem of the Blackstone River (and eventually to Upper Narragansett Bay) is relatively small in comparison to other larger wastewater treatment facilities, and controls on these larger facilities should be sufficient to ensure that water quality standards are attained. See *Evaluation of Nitrogen Targets and WWTF Load Reductions for the Providence and Seekonk Rivers*, RIDEM December 2004. Total nitrogen discharges from the Upton WWTF averaged 24 lb/day in the summers of 2010-2011. Therefore, EPA has not included nitrogen limits at this time.

EPA has included in the draft permit a requirement to optimize nitrogen removal. The draft permit also includes a requirement to submit a report to the permitting agencies within one year, summarizing the measures taken to enhance the removal of nitrogen by its treatment facility and the effectiveness of these measures. The proposed nitrogen requirements in the draft permit are consistent with the requirements for other small WWTFs that ultimately discharge to Narragansett Bay. EPA has also continued the nitrogen monitoring requirements of the current permit.

Phosphorus

The draft permit carries over the current permit's monthly average total phosphorus limit of 0.2 mg/l from April to October. The West River downstream of the Upton discharge has documented impairments for nutrients and organic enrichment/low DO. See *Massachusetts Year 2010 Integrated List of Waters*. The effluent limit of 0.2 mg/l in the current permit is based on the MA SWQS requirement for the implementation of "highest and best practical treatment," interpreted by MassDEP as an effluent limit of 0.2 mg/l for POTWs, where necessary to control cultural eutrophication. As noted in the prior fact sheet, while EPA found at that time that a limit of at least 0.2 mg/l was necessary to meet water quality standards, there was potential for a lower limit to be required in the future upon completion of a future TMDL or updated water quality analysis, or adoption of a state numeric water quality criterion for phosphorus.

While no TMDL or state numeric criterion has been adopted, EPA reviews the available data to determine whether the existing permit limit is sufficient to ensure that the Upton discharge does not cause or contribute to cultural eutrophication. MassDEP has not published monitoring data for the West River since 2008, but the Blackstone River Coalition (BRC) has conducted monitoring on multiple sites in the West River since at least 2006, including both upstream (Hartford Ave) and downstream (Pleasant St and Glen Ave) of the Upton WWTF. As reported in the BRC Water Quality Monitoring Report Cards, nutrient conditions have been characterized as 'Good' at the downstream site every year since 2008, with two years showing better nutrient conditions downstream of the WWTF than upstream (see 2009, Hartford Ave 'Fair'; Pleasant St and Glen Ave'Good'; 2008, Hartford Ave 'Poor'; Pleasant St and Glen Ave 'Good'). (http://zaptheblackstone.org/whatwedoing/water_quality/wqm.shml. Moreover the last year with less than 'Good' conditions at the downstream site corresponds to a year with multiple violations of the Total Phosphurus limit at the Upton WWTF (May 2007 – 0.53 mg/; June 2007 – 0.31 mg/l) during its first full season under the 0.2 mg/l permit limit. Effluent concentrations in 2011 and 2012, in contrast, averaged 0.08 mg/l and 0.10 mg/l, respectively.

EPA also reviewed loads discharged from the Upton WWTF to determine the impacts on the West River. Phosphorus loads discharged by the Upton WWTF ranged between 0.06 and 0.37 lb/day in the phosphorus control season (April to October) of 2011 and 2012. Assuming 7Q10 conditions in the West River of 0.5 cfs with an upstream concentration of 0.04 mg/l, under the maximum load conditions (0.16 mg/l TP, 0.28 MGD monthly average, or 3.7 lb/day), the resulting instream concentration would be 0.096 mg/l, less than the 0.1 mg/l Gold Book standard. This is a conservative calculation, as the facility would not be discharging its maximum loads under the extremely dry 7Q10 conditions.

On that basis EPA concludes that, based on the available information, the current 0.2 mg/l permit limit is sufficient and maintains that limit in this draft permit. EPA notes that this segment of the West River remains listed for impairments and that further analysis or additional information, including increase in the flow from the facility (currently approximately 50% of design flow), may indicate a need for a lower limit. Should a future TMDL or updated water quality analysis indicate the need for a lower limit, this permit may be re-opened and modified to account for a more stringent limit.

In addition to the seasonal phosphorus limit of 0.2 mg/l, the current permit contains a winter period total phosphorus limit of 1.0 mg/l in effect from November 1 through March 31. A higher phosphorus effluent discharge limitation in the winter period is appropriate because the expected predominant form of phosphorus, the dissolved fraction, lacking plant growth to absorb it, will likely remain dissolved and flow out of the system. Imposing a limit on phosphorus during the cold weather months is, however, necessary to ensure that phosphorus discharged during the cold weather months does not result in the accumulation of phosphorus in the sediments, and subsequent release during the warm weather growing season. To confirm that EPA's assumption of the anticipated behavior of dissolved and particulate phosphorus is correct, a monitoring requirement for orthophosphorus was included in the current permit for the winter period in order to determine the dissolved particulate fraction of phosphorus in this discharge. DMR data from the facility confirms that the orthophosphorus fraction is predominant, as expected: in the

winter periods from 2008-09 through 2011-12 the average total phosphorus concentration was 0.28 mg/l with an orthophosphorus component of 0.23 mg/l (84% of the total P). The 1 mg/l winter limit is therefore maintained in the draft permit.

Total Residual Chlorine (TRC)

Chlorine and chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. Effluent limits are based on water quality criteria for total residual chlorine (TRC) which are specified in EPA water quality criteria established pursuant to Section 304(a) of the CWA. The most recent EPA recommended criteria are found in *National Recommended Water Quality Criteria: 2002 (EPA-822-R-02-047)*. The fresh water aquatic life criteria for TRC are 11 ug/l for protection from chronic toxicity and 19 ug/l for protection from acute toxicity.

In its issuance of the current permit EPA determined that there is reasonable potential for TRC concentrations discharged in the effluent to cause or contribute to an exceedance of the water quality criteria given and calculated an average monthly limitation of 11.2 ug/l and maximum daily limitation of 19.4 ug/l for TRC based on the dilution under 7Q10 conditions. 7Q10 dilution factor, multiplied by the acute and chronic fresh water criteria, provide the appropriate TRC limits. As shown below, the calculated limits are 11.2 ug/l and 19.4 ug/l.

Given:
acute freshwater criterion 19 ug/l chlorine
chronic freshwater criterion 11 ug/l chlorine
dilution factor 1.02

Then:
acute criterion x dilution factor = Daily Maximum Limit
19 ug/l x1.02 = 19.38 ug/l
chronic criterion x dilution factor = Monthly Average Limit
11 ug/l x 1.02 = 11.22 ug/l

The draft permit continues the requirement of the current permit that individual TRC daily results (three per day) will be reported only when chlorination is being used, including the 1) individual sample result, 2) time at which the sample was taken, and 3) sampling date. The information for each sample will be reported in an attachment to the monthly DMRs. It should be noted that the draft permit requires that a routine sampling program be developed in which samples are taken at the same location, same time and same day(s) of every month. Any deviations from the routine sampling program shall be documented in correspondence appended to the applicable discharge monitoring report that is submitted to EPA.

The draft permit also continues the current permit's requirement that chlorination and dechlorination systems provide an alarm for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine dosing system may result in levels of chlorine that are inadequate for achieving effective disinfection, or interruptions and/or malfunctions of the dechlorination system may result in excessive levels of chlorine in the final effluent. The draft permit requires that all interruptions or malfunctions be reported with the monthly DMRs. The draft permit requires that the report 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.

Copper

The limits for copper in the existing permit were calculated based on the chronic and acute criteria set forth in the 1998 *National Recommended Water Quality Criteria*, pursuant to the Massachusetts Water Quality Standards in effect when the existing permit was issued in 2002. The MA SWQS were revised in December 2006 to include site specific criteria for copper that were developed for specific receiving waters where national criteria are invalid due to site-specific physical, chemical, or biological considerations, and do not exceed the safe exposure levels determined by toxicity testing [314 CMR 4.05(5)(e), Table 28]. EPA approved an acute criterion of 25.7 ug/l (dissolved, "d") and chronic criterion of 18.1 ug/l (d) for the West River on March 26, 2007. The draft permit contains effluent limits of 18.1 ug/l(total recoverable "tr")(monthly average) and 27.3 ug/l(tr)(maximum daily). The derivation of these limits is set forth below.

In determining the appropriate effluent limitation in response to this revised standard, EPA must apply the requirements of the revised state standard, as set forth in the MA SWQS, specifically at 314 CMR 4.05(5)(e)1 and 314 CMR 4.06, Table 28 (the "site-specific protocol"), and the requirements of the anti-backsliding provisions of the Clean Water Act §§ 402(o) and 303(d)(4).

Site-Specific Protocol: In determining effluent limitations under the revised standard, the site-specific protocol allows for relaxation of permit limits to reflect the higher criteria only to the extent required to reflect the actual performance that the facility has been able to achieve. It states:

> [A]s part of the site-specific criteria, all reasonable efforts to minimize the loads of metals, and copper in this case, are part of the criteria revision protocol. So, the Department on a case-by-case basis will develop permit copper limits. Each determination will be based not only on the adjusted concentration resulting from the appropriate multiplier but will reflect the demonstrated level of copper reduction routinely achievable at the facility in order to minimize copper loads and thereby reduce its accumulation in the sediment.

Thus, determination of the appropriate effluent limits under the site-specific protocol requires calculating both (i) the required effluent limits that would meet the numeric criteria (criteria-based limits) and (ii) the actual effluent concentrations achieved by the facility (performance-based limits), and selecting the more stringent of the two.

Antibacksliding: The reissuance of a permit with less stringent effluent limits must meet the requirements of the CWA's anti-backsliding provision, § 402(o), which allows relaxation of water quality based standards only if they comply with CWA § 303(d)(4), and only if the revised limit meets current effluent guidelines and will not cause a violation of water quality standards.[3]

[3] The anti-backsliding rule also contains a number of exceptions that are not applicable here. *See* CWA § 402(o)(2); 40 CFR § 122.44(l).

The Massachusetts antidegradation policy is set forth in 314 CMR 4.04, providing, *inter alia*, "[i]n all cases existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected."

The analysis under the site-specific protocol addresses the antibacksliding and antidegradation requirements by relaxing the copper limits to the more stringent of the limits necessary to achieve the revised criteria, or to the limits that have historically been achieved by the facility (unless the facility has historically discharged an effluent concentration lower than the current permit limits, in which those limits are retained). Because any relaxed limits will result in attainment of the site-specific criteria and not be less stringent than the facility's current performance, the facility will not be able to scale back its efforts to reduce copper concentrations in the effluent. Therefore, the less stringent limits will not have the result of exceeding the revised criteria or worsening water quality in the receiving water, and the antidegradation requirement will be met.

As set forth above, the effluent limitations are determined by calculating both (i) the required effluent limits that would meet the numeric criteria (criteria-based limits) and (ii) the actual effluent concentrations achieved by the facility (performance-based limits), and selecting the more stringent of the two. The only exception to this procedure is if the actual effluent concentration is lower than the current (non site-specific) limits, then the current limits are retained in the permit

Criteria-based calculation. The criteria-based limits are calculated based on dilution under 7Q10 conditions:

Calculation of acute limit for copper:
Acute criteria (dissolved) = 25.7 ug/l(d)
Dilution factor = 1.02
Effluent limitation for dissolved copper = 25.7 ug/l(d) * 1.02 = 26.2 ug/l(d)
Effluent limitation for total recoverable copper = 26.2 ug/l(d)/0.960 = 27.3 ug/l (tr)

Calculation of chronic limit for copper:
Chronic criteria (dissolved) = 18.1 ug/l(d)
Dilution factor = 1.02
Effluent limitation for dissolved copper = 18.1 ug/l * 1.02 = 18.5 ug/l(d)
Effluent limitation for total recoverable copper = 18.5 ug/l / 0.960 = 19.2 ug/l (tr)

Performance-based calculation. The level of copper removal routinely achieved by the facility (i.e., the past demonstrated performance of the facility) is determined by a statistical analysis of discharge data submitted by the facility over the two year period from December 2009 through November 2011, using the methodology set forth in the *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001 (March 1991) (Appendix E).* The average monthly and maximum daily limits are based on the 95th and 99th percentile of a lognormal distribution, based on the facility's monthly average effluent data as shown in Table 2. These calculations indicate that limits based solely on past performance would result in a monthly average limit of 20.2 µg/l(tr) and a maximum daily limit of 31.9 µg/l(tr).

Resulting Effluent Limitation. As noted above, pursuant to the site-specific protocol, effluent limits will be relaxed only to the more stringent of the criteria-based or performance-based limits. In this case the the criteria-based limits are more stringent. The draft permit therefore includes monthly limit and maximum daily limits based on the criteria, as follows:

Monthly average: 19.2 µg/l(tr)
Maximum daily: 27.3 µg/l(tr)

Other metals

EPA determined in previous permit reissuances that the Upton discharge has a reasonable potential to cause or contribute to exceedances of water quality standards for aluminum, cadmium, lead and zinc as well as copper. Permit limits for these metals are based on the 7Q10 dilution factor at a hardness of 58 mg/l for the metals with hardness-dependent criteria (cadmium, lead and zinc). The draft permit continues these effluent limitations.

In the five year term of the existing permit there have been no violations of the cadmium, lead or zinc limits. Therefore the monitoring frequency for cadmium and lead has been reduced to four (4) per year, consistent with the reduction in monitoring frequency for zinc in the current permit. The permittee may report the effluent analytical data generated in conjunction with the WET test to meet this reporting requirement.

With respect to the aluminum, there has been one violation of the monthly average permit limitation of 88.7 ug/l (180 ug/l in December 2010), and no violations of the 765 ug/l maximum daily limitation. Given this exceedance and the permittee's use of aluminum compounds in the treatment process, monitoring for aluminum is maintained at 2/month.

Toxicity Testing

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

Based on the potential for toxicity resulting from domestic and industrial contributions, the low level of dilution at the discharge location, water quality standards, and in accordance with EPA regulation and policy, the draft permit includes chronic and 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. The policy requires wastewater treatment facilities to perform toxicity bioassays on their effluents. The MassDEP requires bioassay toxicity testing for state certification.

The MassDEP's Division of Watershed Management has a current toxics policy which requires toxicity testing for all major dischargers such as the Upton WWTF (*Implementation Policy for*

the Control of Toxic Pollutants in Surface Waters, MassDEP 1990). In addition, EPA believes that toxicity testing is required to assure that the synergistic effect of the pollutants in the discharge does not cause toxicity, even though the pollutants may be at low concentrations in the effluent. The inclusion of whole effluent toxicity limitations in the draft permit will assure that the Upton WWTF does not discharge combinations of toxic compounds into the West River in amounts which would affect aquatic or human life.

Pursuant to EPA Region I Policy, and MassDEP's *Implementation Policy for the Control of Toxic Pollutants in Surface Waters* (February 1990), dischargers having a dilution factor less than 10 are required to conduct acute and chronic toxicity testing four times per year unless there are passing results over an extended period of time. A dilution factor of 1.02 was calculated for this facility in connection with the reissuance of the current permit based on a 7Q10 flow of 0.008 MGD. In accordance with the above guidance, the draft permit includes an acute toxicity limit (LC50 of > 100%) and a chronic toxicity limit (C-NOEC of > 98 %). The C-NOEC calculations are as follows: (1/dilution factor * 100) = (1/1.02 * 100) = 98 percent.

Under the current permit the permittee has conducted WET tests using both the fathead minnow, *Pimephalas promelas*, and the daphnid, *Ceriodaphnia dubia*. The facility had two excursions from the permit limit for chronic toxicity in the period 2010 to 2012, both for the daphnid. As the facility's DMRs document that the daphnid has consistently been the more sensitive species since 2008, the draft permit reduces testing requirements to a single species, *Ceriodaphnia dubia*, only. Toxicity testing must be performed in accordance with the EPA Region I test procedures and protocols specified in **Attachment A** of the draft permit (Freshwater Chronic Toxicity Procedure and Protocol), and the tests will be conducted four times a year. EPA and MassDEP may use the results of the toxicity tests and chemical analyses conducted by the permittee, required by the permit, as well as national water quality criteria, state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants.

7. Collection 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 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. MassDEP has stated that the inclusion in NPDES permits of I/I control conditions is a standard State Certification requirement under Section 401 of the CWA and 40 CFR § 124.55(b).

Therefore, specific permit conditions have been included in Part 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. Several of the requirements in the draft permit are not included in the current permit, including collection system mapping, and preparation of a collection system operation and maintenance plan. EPA has determined that these additional requirements are necessary to ensure the proper operation and maintenance of the collection system and has included schedules for completing these requirements in the draft permit.

8. Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Services (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, may adversely impact any essential fish habitat as: waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. § 1802 (10)). Adversely impact means any impact which reduces the quality and/or quantity of EFH (50 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 unnamed stream and the West River are not covered by the EFH designation for riverine systems and thus EPA has determined that a formal EFH consultation with NMFS is not required.

9. Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or

carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species, where as the National Marine Fisheries Service (NMFS) administers Section 7 consultations for marine species and anadromous fish.

EPA has determined that no federally-listed or proposed, threatened or endangered species or critical habitat are known to occur in the West River or vicinity of the Upton WWTF. Furthermore, the effluent limitations and other permit requirements identified in this Fact Sheet are designed to be protective of all aquatic species.

10. 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.

As noted on page 3 of the permit, a routine sampling program shall be developed in which samples are taken at the same location, same time and same day(s) of every month. Any deviations from the routine sampling program shall be documented in correspondence appended to the applicable discharge monitoring report that is submitted to EPA.

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 CWA permittees to submit DMRs electronically via a secure Internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 CFR § 122.41 and § 403.12. NetDMR is accessed from the following url: http://www.epa.gov/netdmr. Further information about NetDMR, including contacts for EPA Region 1, is provided on this website.

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 Massachusetts.

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 and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP.

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.

11. State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection certifies that the effluent limitations included in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. EPA has requested permit certification by the State pursuant to 40 CFR §124.53 and expects the draft permit will be certified.

12. Comment Period, Hearing Requests, and Procedures for Final Decisions

All persons, including applicants, who believe any condition of the permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period to Susan Murphy, U.S. Environmental Protection Agency, 5 Post Office Square, Suite 100 (OEP06-1), Boston, MA 02109. Any person prior to such date may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues 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 the public hearing, if held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and to each person who has submitted written comments or requested notice.

13. EPA Contact

Requests for additional information or questions concerning the draft permit may be addressed Monday through Friday, between the hours of 9:00 a.m. and 5:00 p.m., to :

Susan Murphy
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109
Telephone: (617) 918-1534 Fax: (617) 918-0534
Email: murphy.susan@epa.gov

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Email: claire.golden@state.ma.us

February 2013

Stephen S. Perkins, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

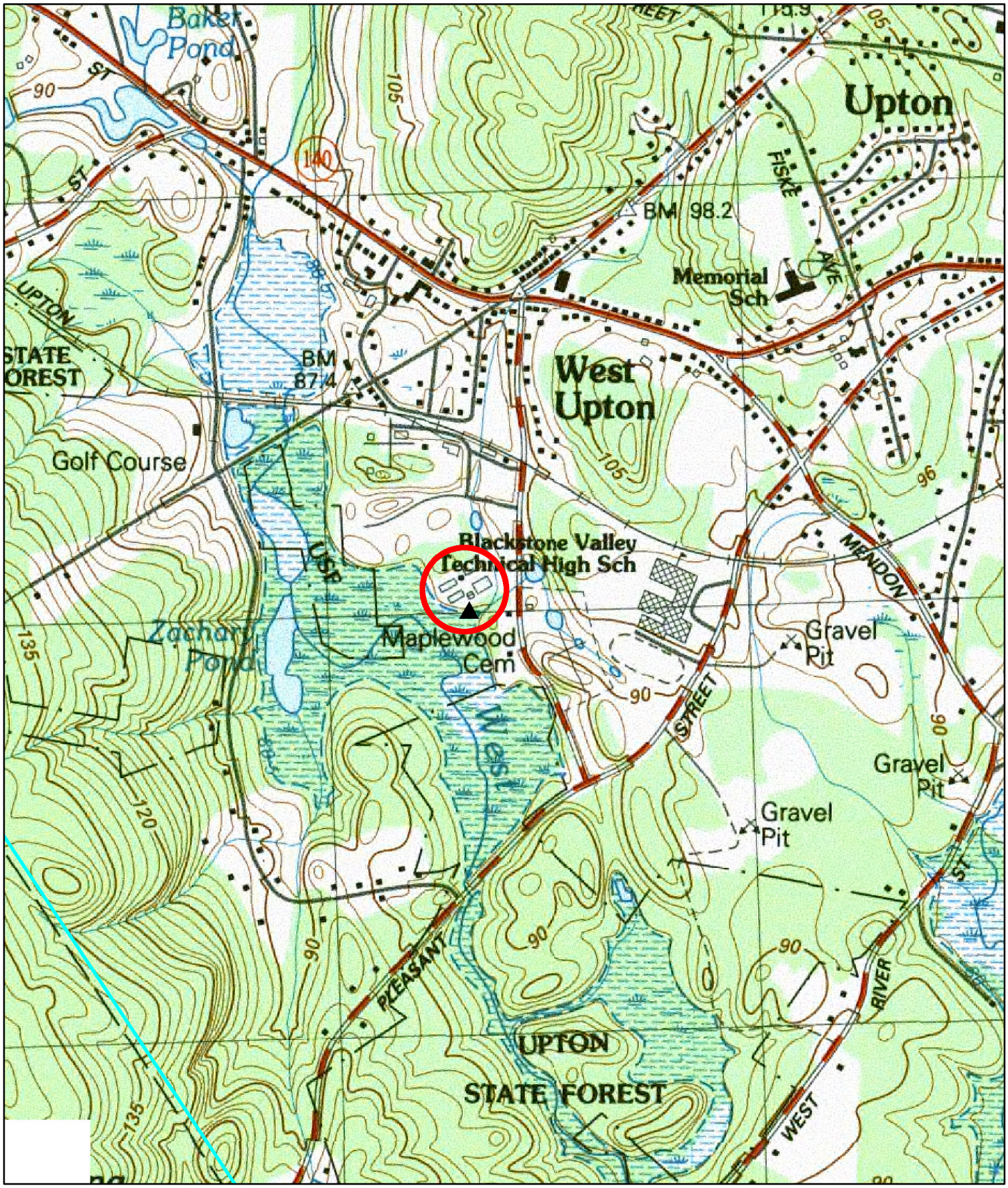

Figure 1. Location Map
Upton WWTF
NPDES No. MA0100196

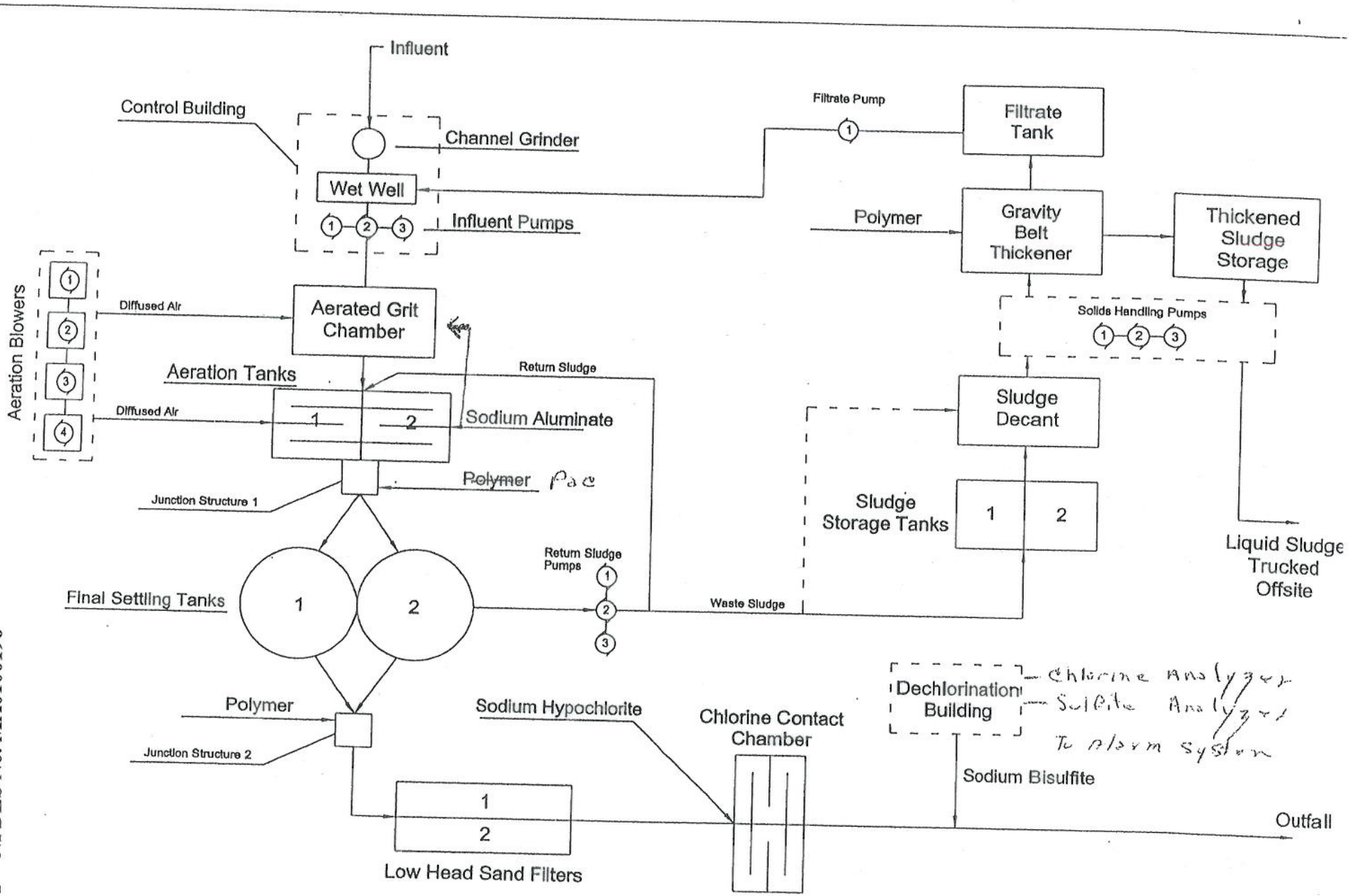

Figure 2. Process Flow Diagram
Upton WWTF – NPDES No. MA0100196

NPDES Permit No. MA 0100196

Table 1. Three year facility DMR Data

	Flow (MGD)		BOD (mg/l)		TSS (mg/l)		fecal colilform (cfu/100 ml)		TRC (mg/l)		pH		Whole Effluent Toxicity			
													P. pimphales		*C. dubia*	
	12mo avg	daily max	mo avg	wkly avg	mo avg	wkly avg	mo avg	daily max	mo avg	daily max	min	max	LC50	CNOEC	LC50	CNOEC
Effluent Limit:		Report	30	45	30	45	200	400	11.2	19.4	6.5	8.3	≥ 100%	≥ 98%	≥ 100%	≥ 98%
Sampling Frequency:	CONTINUOUS		1/week		1/week		2/week		3/day		1/day		4/year	4/year	4/year	4/year
January 2010	0.21	0.29	1.46	1.75	0.8	0.87					6.65	7.4	≥ 100%	≥ 100%	≥ 100%	≥ 100%
February	0.21	0.43	1.43	1.82	1.7	2.52					6.55	7.62				
March	0.22	0.94	2.33	2.87	1.9	5.2					6.53	7.44				
April	0.23	0.63	2.47	3.67	0.55	0.83	1.43	92	10.3	20	6.57	7.47	≥ 100%	≥ 100%	≥ 100%	≥ 100%
May	0.23	0.21	1.17	1.19	0.65	0.88	2.38	390	11.3	16.6	6.58	7.96				
June	0.23	0.18	1.69	1.82	0.45	0.73	204	990	11	20	6.56	7.89				
July	0.22	0.14	1.04	1.28	0.55	0.95	1.9	10	12	20	6.81	8.02	≥ 100%	≥ 98%	≥ 100%	≥ 100%
August	0.21	0.14	0.72	1.15	0.36	0.55	39	130	8.7	16	6.6	7.79				
September	0.21	0.14	0.89	0.84	0.43	1.1	50	440	10	16	6.58	8.03				
October	0.21	0.19	0.78	0.68	0.64	1.1	11	110	20	12	6.64	8.06	≥ 100%	≥ 100%	≥ 100%	≥ 100%
November	0.21	0.21	0.87	1.54	0.34	0.43					6.6	7.7				
December	0.2	0.29	1.08	1.36	0.51	0.68					6.6	7.27				
January 2010	0.2	0.21	0.92	1.27	0.72	0.84					6.56	7.92	100%	100%	100%	100%
February	0.2	0.35	1.17	1.7	0.62	0.78					6.6	8				
March	0.19	0.57	1.24	1.9	1.02	2.3					6.6	7.5				
April	0.19	0.37	1.36	1.85	0.55	0.63	7.2	130	14	33	6.7	7.6	100%	100%	100%	100%
May	0.19	0.24	0.8	1.36	0.48	0.57	1.3	28	15	20	6.6	8.2				
June	0.2	0.29	1.07	2.2	0.84	0.97	0.78	44	6	16	6.6	7.5				
July	0.2	0.2	1.02	1.51	0.85	1	2.6	440	9	16	6.6	7.5	100%	100%	100%	100%
August	0.2	0.5	0.86	1.87	1.13	1.28	0.91	100	9	13	6.6	7.6				
September	0.22	0.41	1.38	1.73	1.13	1.3	0.94	180	7	13	6.6	7.6				
October	0.22	0.33	1.73	3.23	1.16	1.15	139	450	7.6	13	6.7	7.3	100%	100%	100%	100%
November	0.24	0.34	0.74	1.15	1.12	1.25					6.5	7.5				
December	0.24	0.4	1.16	1.98	0.85	1.15					6.5	7.2				
January 2012	0.24	0.25	1.38	1.2	0.74	1.22					6.6	7.4	100%	100%	100%	100%
February	0.24	0.23	2.07	2.24	0.84	0.95					6.6	7.7				
March	0.23	0.2	1.17	1.7	1.08	1.29					6.5	7.8				
April	0.22	0.24	1.57	1.81	1.12	1.28	46	450	5.5	13	6.6	8	100%	100%	100%	100%
May	0.21	0.2	1.89	2.9	1.08	1.22	123	8300	4.6	13	6.6	7.7				
June	0.21	0.22	2.09	2.08	1.26	1.4	293	3200	3.4	13	6.6	7.4				
July	0.21	0.16	1.82	2.62	1.01	1.21	2.71	36	3	10	6.7	7.4	100%	100%	100%	6.25%
August	0.21	0.2	1.78	3.07	0.75	0.92	4.8	13	3.8	13.3	6.6	7.4				
September	0.2	0.2	1.59	2.29	0.76	0.94	0.63	11	2	6.6	6.7	7.3				
October	0.19	0.2	1.77	2.29	0.72	0.7	9.2	21	4.8	10	6.6	7	100%	100%	100%	25%
November	0.18	0.17	2.44	2.67	0.67	0.89					6.5	7.3				
December	0.17	0.23	2.25	3.26	1.23	2.1					6.6	7.3				
Average:	0.21		1.42	1.94	0.85	1.20	44.85	741.19	8.48	15.40	6.60	7.60	≥ 100%	≥ 100%	≥ 100%	≥ 100%
Maximum:		0.9	2.5	3.7	1.9	5.2	293.0	8,300.0	20.0	33.0	6.5 (min)	8.2				

NPDES Permit No. MA 0100196

Table 1. Three year facility DMR Data

	Aluminum (ug/l)		Cadmium (ug/l)		Copper (ug/l)		Lead (ug/l)		Zinc (ug/l)		Total Phosphorus (mg/l)		Orthophosphorus (mg/l)	NH3 (mg/l)	Nitrate (mg/l)	Nitrite (mg/l)	TKN (mg/l)	Total N
	mo avg	daily mx	mo avg	daily mx	mo avg	daily mx	mo avg	daily mx	mo avg	daily mx	mo avg	daily max	mo avg	mo avg	mo avg	mo avg	mo avg	mo avg
	88.7	765	0.19	1.3	20*		1.62	Report	77	77	0.2/1.0	Report	Report	Report	Report	Report	Report	(Calculated)
Sampling Frequency:	2/month		2/month		2/month		2/month		4/year		1/week		1/week	1/week	1/month	1/month	1/month	(Calculated)
January 2010	86	97	0	0	10	11	0	0	34	34	0.81	1.34	0.81	0.12	16	0	0	16
February	0	0	0	0	7	7.1	0	0			0.45	0.59	0.41	0.09	12	0	0	12
March	0	0	0	0	8.5	9.9	0	0			0.1	0.14	0.05	0.12	8.8	0	0	8.8
April	0	0	0	0	6.3	7.2	0	0	32	32	0.06	0.1		0.11	6.2	0	0	6.2
May	0	0	0	0	10.1	10.3	0	0			0.19	0.3		0.11	15	0	0	15
June	0	0	0	0	8.6	9.01	0	0			0.18	0.22		0.1	17	0	0	17
July	0	0	0	0	13.5	15	0	0	33	33	0.24	0.27		0.14	19	0	0	19
August	0	0	0	0	16.6	18	0	0			0.1	0.18		0.07	17	0	0	17
September	0	0	0	0	13.3	13.3	0	0			0.1	0.12		0.03	22	0	0	22
October	0	0	0	0	16.4	16.5	0	0	35	35	0.09	0.14		0.02	24	0.07	0	24.07
November	0	0	0	0	22	23	0	0			0.31	0.53	0.26	0.01	23	0.08	0	23.08
December	180	200	0	0	16.5	24	0	0			0.34	0.5	0.25	0.07	23	0	0	23
January 2011	65	81	0	0	12	12	0	0	49	49	0.23	0.33	0.16	0.06	18	0	0	18
February	40	80	0	0	14.3	14.7	0	0			0.33	0.4	0.25	0.08	20	0	0	20
March	81	87	0	0	7.8	10.6	0	0			0.08	0.14	0.05	0.15	12	0	0	12
April	0	0	0	0	10	10.6	0	0	50	50	0.16	0.18		0.08	13	0	0	13
May	0	0	0	0	6.2	7.4	0	0			0.07	0.13		0.16	18	0	0	18
June	0	0	0	0	5	5.1	0	0			0.03	0.08		0.06	16	0	0.52	16.52
July	63	90	0	0	7.5	8.7	0	0	44.7	44.7	0.08	0.11		0.18	17	0	0	17.3
August	0	0	0	0	18	25	0	0			0.1	0.17		0.26	15	0	0	15
September	0	0	0	0	11.4	17	0	0			0.04	0.05		0.04	9.3	0	0	9.3
October	0	0	0	0	13.7	18.1	0	0	27	27	0.04	0.06		0.27	12	0	0	12
November	0	0	0	0	9.9	11.1	0	0			0.04	0.05	0.02	0.19	10	0	0	10
December	0	0	0	0	6.35	6.5	0	0			0.07	0.1	0.05	0.66	14	0	0	14
January 2012	0	0	0	0	11.2	12.6	0	0			0.31	0.46	0.3	0.1	13	0	0.75	13.75
February	0	0	0	0	14.2	15.2	0	0			0.51	0.56	0.48	0.16	19	0	0	19
March	0	0	0	0	15.8	16.4	0	0			0.19	0.36	0.14	0.12	22	0	1.9	23.9
April	0	0	0	0	14.5	15.8	0	0			0.14	0.19		0.08	26	0	0	26
May	0	0	0	0	8.55	8.6	0	0			0.11	0.16		0.34	19	0.06	1.6	20.66
June	0	0	0	0	8.1	8.3	0	0			0.08	0.11		0.15	18	0	0	18
July	0	0	0	0	14.3	14.2	0	0			0.11	0.14		0.32	21	0.03	2.3	23.3
August	0	0	0	0	14.5	14.6	0	0			0.09	0.12		0.14	8.9	0	0.95	9.8
September	0	0	0	0	15.7	16.6	0	0			0.07	0.07		0.05	19	0	0	19
October	0	0	0	0	17.9	19.7	0	0			0.07	0.17		0.1	21	0	0	21
November	0	0	0	0	27.3	31.8	0	0			0.17	0.26	0.12	0.07	22	0	1.5	23.5
December	0	0	0	0	29.8	34.1	0	0			0.2	0.28	0.11	0.07	32	0.06	0	32.06
Average:	14.3	17.6	0.0	0.0	12.9	14.4	0.0	0.0	38.1	38.1	0.2	0.3	0.2	0.1	17.2	0.0	0.3	17.5
Maximum:	180.0	200.0	0.0	0.0	29.8	34.1	0.0	0.0	50.0	50.0	0.8	1.3	0.8	0.7	32.0	0.1	2.3	32.1

*interim limit

Daily Maximum Concentration - 99th percentile

u_y = Avg of Nat. Log of daily Discharge (lbs/day) =	2.43102
s_y = Std Dev. of Nat Log of daily discharge =	0.44407
$S (y_i - u_y)^2$ =	18.73350
k = number of daily samples =	96
s_y^2 = estimated variance = $(S[(y_i - u_y)^2]) / (k-1)$ =	0.19719

RP analysis/Limit calculation:

99th percentile daily max limit = exp (u_y + 2.326*s_y)

Daily Max Limit* = 31.9418 ug/L

TSD-Table E-1, no ND, 99th percentile

Average Monthly Concentration - 95th percentile

Number of samples per month, n =	2
E(x) = Daily Avg = exp(u_y + 0.5 s_y^2) =	12.54868
V(x) = Daily Variance = exp(2u_y + s_y^2) * [exp(s_y^2) - 1] =	34.32533
s_n^2 = Monthly Average variance = ln{ V(x) / (n[E(x)]^2) + 1} =	0.10345
s_n = Monthly Average standard deviation = s_n^2^(0.5) =	0.32164
u_n = n-day monthly average = ln(E(x)) - 0.5s_n^2 =	2.47789

RP analysis/Limit calculation:

95th percentile monthly average limit = exp (u_n + 1.645*s_n)

Monthly Avg Limit* = 20.23 ug/L

TSD-Table E-2, no ND, 95th percentile

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
COMMONWEALTH OF MASSACHUSETTS
1 WINTER STREET
BOSTON, MASSACHUSETTS 02108

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ECOSYSTEM PROTECTION
REGION I
BOSTON, MASSACHUSETTS 02109

JOINT PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO THE WATERS OF THE UNITED STATES UNDER SECTIONS 301 AND 402 OF THE CLEAN WATER ACT, AS AMENDED, AND UNDER SECTIONS 27 AND 43 OF THE MASSACHUSETTS CLEAN WATERS ACT, AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE CLEAN WATER ACT.

DATE OF NOTICE: March 8, 2013

PERMIT NUMBER: **MA0100196**

PUBLIC NOTICE NUMBER: MA-008-13

NAME AND MAILING ADDRESS OF APPLICANT:

Town of Upton
P.O. Box 75
Upton, MA 01568

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Upton Wastewater Treatment Facility
43 Maple Avenue
Upton, MA 01568

RECEIVING WATER: unnamed tributary stream of the West River

RECEIVING WATER CLASSIFICATION: Class B

PREPARATION OF THE DRAFT PERMIT:

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have cooperated in the development of a permit for the above identified facility. The effluent limits and permit conditions imposed have been drafted to assure compliance with the Clean Water Act, 33 U.S.C. sections 1251 et seq., the Massachusetts Clean Waters Act, G.L. c. 21, §§ 26-53, 314 CMR 3.00 and State Surface Water Quality Standards at 314 CMR 4.00. EPA has formally requested that the State certify this draft permit pursuant to Section 401 of the Clean Water Act and expects that the draft permit will be certified. However, sludge conditions in the draft permit are not subject to State certification requirements.

INFORMATION ABOUT THE DRAFT PERMIT:

A fact sheet (describing the type of facility; type and quantities of wastes; a brief summary of the basis for the draft permit conditions; and significant factual, legal and policy questions considered in preparing this draft permit) and the draft permit may be obtained at no cost at http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html or by writing or calling EPA's contact person named below:

Susan Murphy
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1534

The administrative record containing all documents relating to this draft permit is on file and may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by April 6, 2013, to the U.S. EPA, 5 Post Office Square, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing to EPA and the State Agency for a public hearing to consider this draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on this draft permit, the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION:

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

DAVID FERRIS, DIRECTOR
MASSACHUSETTS WASTEWATER MANAGEMENT PROGRAM
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

KEN MORAFF, ACTING DIRECTOR
OFFICE OF ECOSYSTEM PROTECTION
ENVIRONMENTAL PROTECTION AGENCY – REGION 1