

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),

**Charles River Pollution Control District**

is authorized to discharge from the facility located at

**66 Village Street  
Medway, Massachusetts 02003**

to receiving water named

**Charles River (MA 72-05)**

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

The Towns of Franklin, Medway, Millis, and Bellingham are co-permittees for specific activities required in Sections I.B - Unauthorized Discharges and I.C - Operation and Maintenance of the Sewer System, which include conditions regarding the operation and maintenance of the collection systems. The responsible municipal Departments are:

**Town of Franklin  
Town Administration  
355 East Central Street  
Franklin, MA 02038**

**Town of Medway  
Department of Public Services  
155 Village Street  
Medway, MA 02053**

**Town of Millis  
Department of Public Works  
Veterans Memorial Building  
900 Main Street  
Millis, MA 02054**

**Town of Bellingham  
Department of Public Works  
26 Blackstone Street  
Bellingham, MA 02019**

This permit shall become effective (See below)\*\*

This permit supersedes the permit issued on September 29, 2000 and modified on April 22, 2002.

This permit consists of 15 pages in Part I including effluent limitations, monitoring requirements, Attachment A, Freshwater Chronic Toxicity Tests Procedure and Protocol; Attachment B, EPA New England Reassessment of Technically Based Industrial Discharge Limits; Attachment C, NPDES Permit Requirement for Industrial Pretreatment Annual Report; Attachment D, EPA Region 1 NPDES Permit Sludge Compliance Guidance; and 25 pages in NPDES Part II Standard Conditions.

Signed this     day of

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

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David Ferris, Director  
Division of Watershed Management  
Department of Environmental Protection  
Commonwealth of Massachusetts  
Boston, MA

\*\* This permit will become effective on the date of signature if no comments are received during public notice. If comments are received during public notice, this permit will become effective 60 days after signature.

**PART I**

<b>A.1.</b> During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number 001 to the Charles River. Such discharges shall be limited and monitored as specified below.							
<u>EFFLUENT CHARACTERISTIC</u>			<u>EFFLUENT LIMITS</u>		<u>MONITORING REQUIREMENTS</u>		
<b>PARAMETER</b>	<b>AVERAGE MONTHLY</b>	<b>AVERAGE WEEKLY</b>	<b>AVERAGE MONTHLY</b>	<b>AVERAGE WEEKLY</b>	<b>MAXIMUM DAILY</b>	<b>MEASUREMENT FREQUENCY</b>	<b>SAMPLE<sup>3</sup> TYPE</b>
FLOW (October 1 - June 30)	*****	*****	5.7 MGD <sup>2</sup>	*****	Report MGD	Continuous	Recorder
FLOW (July 1 - September 30)	*****	*****	4.5 MGD <sup>2</sup>	*****	Report MGD	Continuous	Recorder
CBOD <sub>5</sub> (November 1 - April 30)	570 lbs/day	950 lbs/day	15 mg/l	25 mg/l	Report mg/l <sup>1</sup>	3/week <sup>4</sup>	24-Hour Composite <sup>5</sup>
CBOD <sub>5</sub> (May 1- October 31)	265 lbs/day	380 lbs/day	7 mg/l	10 mg/l	Report mg/l <sup>1</sup>	3/week <sup>4</sup>	24-Hour Composite <sup>5</sup>
TSS (November 1 - April 30)	570 lbs/day	950 lbs/day	15 mg/l	25 mg/l	Report mg/l <sup>1</sup>	3/week <sup>4</sup>	24-Hour Composite <sup>5</sup>
TSS (May 1 - October 31)	265 lbs/day	380 lbs/day	7 mg/l	10 mg/l	Report mg/l <sup>1</sup>	3/week <sup>4</sup>	24-Hour Composite <sup>5</sup>
pH RANGE <sup>1</sup>	6.5 - 8.3 SU See Permit Page 6, Paragraph I.A.1.b.					1/day	Grab
TOTAL CHLORINE RESIDUAL <sup>1,6,7</sup> (March 1 - November 30)	*****	*****	17 ug/l	*****	30 ug/l	2/day	Grab
FECAL COLIFORM <sup>1,6</sup> (March 1 - November 30)	*****	*****	200 cfu/100 ml	*****	400 cfu/100 ml	3/week	Grab
<u>ESCHERICHIA COLI BACTERIA</u> <sup>1,6</sup> (March 1 - November 30)	*****	*****	126 cfu/100 ml	*****	409 cfu/100 ml	3/week	Grab
DISSOLVED OXYGEN (April 1 - October 31)	Not less than 6 mg/l					1/day	Grab or Meter
WHOLE EFFLUENT TOXICITY SEE FOOTNOTES 8, 9, 10, and 11	Acute LC <sub>50</sub> ≥ 100% Chronic C-NOEC > 63%					4/year	24-Hour Composite <sup>5</sup>

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A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number <b>001</b> to the Charles River. Such discharges shall be limited and monitored as specified below.							
<u>EFFLUENT CHARACTERISTIC</u>			<u>EFFLUENT LIMITS</u>		<u>MONITORING REQUIREMENTS</u>		
<b>PARAMETER</b>	<b>AVERAGE MONTHLY</b>	<b>AVERAGE WEEKLY</b>	<b>AVERAGE MONTHLY</b>	<b>AVERAGE WEEKLY</b>	<b>MAXIMUM DAILY</b>	<b>MEASUREMENT FREQUENCY</b>	<b>SAMPLE<sup>3</sup> TYPE</b>
TOTAL AMMONIA-NITROGEN, as N (November 1 - March 31)	Report lbs/day	Report lbs/day	Report mg/l	*****	Report mg/l	1/month	24-Hour Composite <sup>5</sup>
TOTAL AMMONIA-NITROGEN, as N (April 1 - April 30)	380 lbs/day	570 lbs/day	10 mg/l	15 mg/l	20 mg/l	1/month	24-Hour Composite <sup>5</sup>
TOTAL AMMONIA-NITROGEN, as N (May 1 - May 31)	190 lbs/day	285 lbs/day	5 mg/l	7.5 mg/l	10 mg/l	3/week	24-Hour Composite <sup>5</sup>
TOTAL AMMONIA-NITROGEN, as N (June 1 - October 31)	38 lbs/day	57 lbs/day	1.0 mg/l	1.5 mg/l	2.0 mg/l	3/week	24-Hour Composite <sup>5</sup>
TOTAL PHOSPHORUS <sup>12</sup> (November 1 - March 31)	*****	*****	0.30 mg/l	*****	*****	1/month	24-Hour Composite <sup>5</sup>
TOTAL PHOSPHORUS <sup>12</sup> (April 1 - October 31)	*****	*****	0.10 mg/l	*****	*****	3/week	24-Hour Composite <sup>5</sup>
TOTAL COPPER	*****	*****	13 ug/l	*****	23 ug/l	1/month	24-Hour Composite <sup>5</sup>

Footnotes:

1. Required for State Certification.
2. For flow, report annual average, monthly average, maximum and minimum daily rates and total flow for each operating date. This is an annual average flow limit, which shall be reported as a rolling average. The annual average shall be calculated as the arithmetic mean of the monthly average flow from the reporting month and the monthly average flow from the previous 11 months.
3. All sampling shall be representative of the influent and of the effluent discharged through outfall 001, except whole effluent toxicity samples, shall be collected at the bottom of the cascade steps. Whole effluent toxicity samples shall be collected after filtration and prior to chlorination. A routine sampling program shall be developed in which samples are taken at the same location, same time, and same days of every month. Any deviations from the routine sampling program shall be documented in correspondence appended to the applicable discharge monitoring report submitted to EPA. 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. All samples shall be twenty-four hour composites unless specified as grab or meter sample in 40 CFR §136.
4. Sampling required for the influent and effluent.
5. A twenty-four hour composite sample will consist of at least twenty four (24) grab samples taken during a consecutive twenty-four hour period (e.g. 0700 Monday to 0700 Tuesday).
6. The average monthly limits for fecal coliform bacteria and *E. coli* are expressed as geometric means. Samples for fecal coliform bacteria and *E. coli* shall be taken at the same time as the total residual chlorine sample.

The bacteria limits and monitoring requirements are in effect from March 1 to November 30 after the effective date of this permit. The seasonal monitoring and reporting requirements for *E. coli* are in effect on the effective date of this permit; the monitoring frequency for *E. coli* during the first year is 1/month. The following season beginning March 1, the fecal coliform limit and monitoring requirement will end and the *E. coli* limits will be in effect and the monitoring frequency for *E. coli* will be 3/week.

Fecal coliform bacteria and total residual chlorine monitoring will be conducted during the period March 1 to November 30 to reflect the seasonal chlorination period. Fecal coliform bacteria discharges shall not exceed a monthly geometric mean of 200 colony forming units (cfu) per 100 ml, nor shall they exceed 400 cfu per 100 ml as a daily maximum. *E. coli* discharges shall not exceed a monthly geometric mean of 126 colony forming units (cfu) per 100 ml, nor shall they exceed 409 cfu per 100 ml as a daily maximum. This monitoring shall be conducted concurrently with the TRC sampling described below.

7. 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, 21st Edition, Method 4500 CL-E and G, or USEPA Manual of Methods of Analysis of Water and Wastes, Method 330.5. 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.

8. The permittee shall conduct chronic (and modified acute) toxicity tests four times per year. The chronic test may be used to calculate the acute LC50 at the 48 hour exposure interval. The permittee shall test the fathead minnows, *Pimephales promelas* and the daphnid, *Ceriodaphnia dubia*. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A, Freshwater Chronic Toxicity Test Procedure and Protocol** of this permit. If the results of any acute or chronic tests fail to comply with the LC<sub>50</sub> and Chronic NOEC limits, the permittee must perform an additional tests on an effluent sample obtained within fourteen days of the date on which the failed test sample was collected. Toxicity test samples shall be collected and the results submitted according to the following schedule:

Test Date months	Submit Results By:	Test Species	Acute Limit LC50	Chronic Limit C-NOEC
January	February 28	<i>Ceriodaphnia dubia</i> (daphnid)	≥100%	≥ 63%
April	May 31			
July	August 31	<i>Pimephales promelas</i> (fathead minnows)		
October	November 30			
		See Attachment A		

9. The LC50 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.
10. 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 at a specific time of observation as determined from hypothesis testing where the test results exhibit a linear dose-response relationship. However, where the test results do not exhibit a linear dose-response relationship, the permittee must report the lowest concentration where there is no observable effect. The "63% or greater" limit is defined as a sample which is composed of 63% (or greater) effluent, the remainder being dilution water. This is a maximum daily limit derived as a percentage of the inverse of the dilution factor of 1.59.
11. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall either follow procedures outlined in **Attachment A, Freshwater Chronic 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 maybe 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 Permit Program Instructions for the Discharge Monitoring Forms (DMR) which is sent to all permittees with their annual set of DMRs and may also be found on the EPA Region 1 web site at <http://www.epa.gov/region1/enforcementandassistance/dmr.html>. If this guidance is revoked, the permittee shall revert to obtaining approval as outlined in **Attachment A, Freshwater Chronic Toxicity Test Procedure and Protocol**.

When using alternate dilution water, the permittee shall continue to submit the results of chemistry tests for the all controls i.e., site water controls and lab water controls.

Any modification or revocation to this guidance will be transmitted to the permittees as part of the annual DMR instruction package. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A, Freshwater Chronic Toxicity Test Procedure and Protocol**.

12. See Section I.H. for compliance schedule.

**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 S.U. nor greater than 8.3 S.U. at any time, unless these values are exceeded as a result of an approved treatment process.
  - c. The discharge shall not cause objectionable discoloration of the receiving waters.
  - d. The effluent shall contain neither a visible oil sheen, foam, nor 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. Sample results using EPA approved methods for any parameter 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 that POTW from an indirect discharger in a primary industry category discharging process water; and
  - b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
  - c. For purposes of this paragraph, adequate notice shall include information on:
    - (1) The quantity and quality of effluent introduced into the POTW; and
    - (2) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
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.
  - b. If, within 30 days after notice of an interference or pass-through violation has been sent by EPA to the POTW. and to persons or groups who have requested such notice, the POTW fails to commence appropriate enforcement action to correct the violation, EPA may take appropriate enforcement action.

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**

The permit only authorizes discharges in accordance with the terms and conditions of this permit and only from the outfall listed in Part I A.1. of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs) are not authorized by this permit and shall be reported in accordance with Section D.1.e. (1) of the General Requirements of this permit (24-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 NPDES Part II, Standard Conditions and the following terms and conditions. The permittee and each co-permittee are required to complete the following activities for the collection system which it owns:

1. Maintenance Staff

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

2. Preventive Maintenance Program

The permittee and each co-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 and each co-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 and each co-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 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 and each co-permittee shall develop and implement a Collection System Operation and Maintenance Plan for the collection system it owns.

- a. Within six (6) months of the effective date of the permit, the permittee and each co-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 submitted to EPA and MassDEP within twenty four (24) months from the effective date of this permit. The full Collection System O & M plan shall be implemented within the same time frame. 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 and co-permittee's programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts; and
- (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 and each co-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 the design flow [4.56 MGD, October 1 through June 30 and 3.6 MGD, July 1 through September 30] or there have been capacity related overflows, submit a calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year; and
- f. A summary of unauthorized discharges during the past year and their causes and a report of any corrective actions taken as a result of the unauthorized discharges reported pursuant to the Unauthorized Discharges section of this permit.

7. Alternate Power Source

In order to maintain compliance with the terms and conditions of this permit, the permittee and each co-permittee shall provide an alternative power source(s) sufficient to operate the portion of the publicly owned treatment works<sup>1</sup> it owns and operates.

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<sup>1</sup> As defined at 40 CFR § 122.2, which references the definition at 40 CFR § 403.3

#### D. CHLORINATION SYSTEM

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 or excessive levels of chlorine or dechlorination chemicals occurred.

#### E. LIMITATIONS FOR INDUSTRIAL USERS

1. Pollutants introduced into POTWs by a non-domestic source (user) shall not pass-through the POTW or interfere with the operation or performance of the works.
2. The permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW treatment plant facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice to respond. Within 120 days of the effective date of this permit, the permittee shall prepare and submit a written technical report to EPA analyzing local limits. As part of the evaluation, the permittee shall assess how the POTW performs with respect to influent and effluent of pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, activated sludge inhibition, worker health and safety, and collection system concerns. In preparing this evaluation, the permittee shall complete and submit the attached form of **Attachment B, EPA New England Reassessment of Technically Based Industrial Discharge Limits** with the technical evaluation to assist in determining whether existing local limits need to be revised. Justifications and conclusions should be based on actual plant data, if available and should be included in the report. Upon completion of its review, EPA will notify the POTW if the evaluation reveals that the local limits should be revised. Should the local limits need to be revised, the permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval. The permittee shall carry out the local limits analysis in accordance with EPA's Local Limit Development Guidance (EPA 833-R-04-002A, July 2004).

#### F. INDUSTRIAL PRETREATMENT PROGRAM

1. The permittee shall implement the industrial pretreatment program in accordance with the legal authorities, policies, procedures, and financial provisions described in the permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 CFR 403. At a minimum, the permittee must perform the following duties to properly implement the Industrial Pretreatment Program (IPP):
  - a. Carry out the inspection, surveillance, and monitoring procedures which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and maintain adequate records.
  - b. Issue or renew all necessary industrial user control mechanisms within 90 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.
  - c. Obtain appropriate remedies for non-compliance by any industrial user with any pretreatment standard and/or requirement.

- d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.
- 2.. The permittee shall provide the EPA and MassDEP with an annual report in accordance with 40 CFR 403.12(i), describing the permittee's pretreatment program activities for the period from July 1 to June 30. The annual report shall be consistent with the format described in **Attachment C, NPDES Permit Requirement for Industrial Pretreatment Annual Report** of this permit and shall be submitted no later than September 1 of each year.
3. The permittee must obtain approval from EPA prior to making any significant changes to the industrial pretreatment program in accordance with 40 CFR 403.18(c).
4. The permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 CFR 405 et. seq.
5. The permittee must modify its pretreatment program to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program. The permittee must provide EPA, in writing, within 180 days of this permit's effective date proposed changes, if applicable, to the permittee's pretreatment program deemed necessary to assure conformity with current federal regulations. At a minimum, the permittee must address in its written submission the following areas: (1) enforcement response plan; (2) revised sewer use ordinances; and (3) slug control evaluations. The permittee will implement these proposed changes pending EPA Region I's approval under 40 CFR 403.18. This submission is separate and distinct from any local limits analysis submission described in Part I.E.2.
6. On October 14, 2005 EPA published in the Federal Register final changes to the General Pretreatment Regulations. The final "Pretreatment Streamlining Rule" is designed to reduce the burden to industrial users and provide regulatory flexibility in technical and administrative requirements of industrial users and POTWs. Within 90 days of the effective date of this permit, the permittee must submit to EPA all required modifications of the Streamlining Rule in order to be consistent with the provisions of the newly promulgated Rule. To the extent that the POTW legal authority is not consistent with the required changes, they must be revised and submitted to EPA for review.

#### G. SLUDGE CONDITIONS

1. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices and with the CWA Section 405(d) technical standards.
2. The permittee shall comply with the more stringent of either the state or federal (40 CFR Part 503) requirements.
3. The requirements and technical standards of 40 CFR Part 503 apply to facilities which perform one or more of the following 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 40 CFR Part 503 conditions do not apply to facilities which place sludge within a municipal solid waste landfill. These conditions also do not apply to facilities which do not dispose of sewage sludge during the life of the permit but rather treat the sludge (i.e., lagoons-reed beds), or are otherwise excluded under 40 CFR Part 503.6.

5. The permittee shall use and comply with the attached compliance guidance document to determine appropriate conditions. Appropriate conditions contain the following elements:

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

Depending upon the quality of material produced by a facility, all conditions may not apply to the facility.

6. The permittee shall monitor the pollutant concentrations, pathogen reduction and vector attraction reduction 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 1500	1 /quarter
1500 to less than 15000	6 /year
15000 +	1 /month

7. The permittee shall sample the sewage sludge using the procedures detailed in 40 CFR 503.8.

8. The permittee shall submit an annual report containing the information specified in the guidance by February 19. Reports shall be submitted to the address contained in the reporting section of the permit. Sludge monitoring is not required by the permittee when the permittee is not responsible for the ultimate sludge disposal. The permittee must be assured that any third party contractor is in compliance with appropriate regulatory requirements. In such case, the permittee is required only to submit an annual report by February 19 containing the following information:

- \* Name and address of contractor responsible for sludge disposal.
- \* Quantity of sludge in dry metric tons removed from the facility by the sludge contractor.

## H. COMPLIANCE SCHEDULE

The permittee shall achieve compliance with the total phosphorus limits no later than four years from the effective date of the permit in accordance with the following schedule:

- Within 20 months of the effective date of the permit complete planning, design, and award of the contract for the necessary upgrades.
- Within 48 months of the effective date of the permit complete construction of the necessary upgrades.

The permittee shall notify EPA and MassDEP of the completion of these milestones, and in addition shall file a progress report each year, on the effective date of the permit (on page 1 of the Final Permit), detailing the status of the upgrades including a projected date for project completion.

For four years after the effective date of the permit, the monthly average phosphorus limit for the months of June through October is 0.2 mg/l and the monthly average limit for the months of November through March is 1.0 mg/l.

**I. 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 all 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 the 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 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 is 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 (OES04-1)**  
**Boston, MA 02109-3912**

And

**Massachusetts Department of Environmental Protection**  
**Surface Water Discharge Permit Program**  
**627 Main Street, 2<sup>nd</sup> 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 15<sup>th</sup> day of the month following the completed reporting period. All reports required under this permit, including MassDEP Monthly Operation and Maintenance Reports, shall be submitted as an attachment to the DMRs. Signed and dated originals of the DMRs, and all other reports or notifications required herein or in Part II shall be submitted to the Director at the following address:

**U.S. Environmental Protection Agency  
Water Technical Unit  
5 Post Office Square, Suite 100 (OES04-1)  
Boston, MA 02109-3912**

Duplicate signed copies of all reports or notifications required above shall be submitted to the State at the following addresses:

**Massachusetts Department of Environmental Protection  
Central Regional Office  
Bureau of Resource Protection  
627 Main Street  
Worcester, Massachusetts 01608**

Industrial pretreatment reports required in Parts I.E.2 and I.F.2 shall be submitted to the agencies listed above and to:

**Massachusetts Department of Environmental Protection  
Bureau of Waste Prevention  
Industrial Wastewater Section  
1 Winter Street  
Boston, Massachusetts 02108**

And

**Massachusetts Department of Environmental Protection  
Bureau of Waste Prevention  
Industrial Wastewater Section  
627 Main Street, 1st Floor  
Worcester, Massachusetts 01608**

**J. STATE PERMIT CONDITIONS**

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

2. This authorization also incorporates the state water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. 124.53, M.G.L. c. 21, § 27 and 314 CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality certification for the permit are hereby incorporated by reference into this state surface water discharge permit as special conditions pursuant to 314 CMR 3.11.
  
3. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as a NPDES Permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of federal law, this permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.

DRAFT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND - REGION I  
ONE CONGRESS STREET  
BOSTON, MASSACHUSETTS 02114-2023

**PARTIALLY REVISED FACT SHEET**

PARTIALLY REVISED 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 NO.: MA0102598

PUBLIC NOTICE DATE:

NAME AND ADDRESS OF APPLICANT AND OF FACILITY WHERE DISCHARGE OCCURS:

Charles River Pollution Control District  
66 Village Street  
Medway, Massachusetts 02053

The Towns of Franklin, Medway, Millis, and Bellingham are co-permittees for specific activities required in Part I.B, Unauthorized Discharges and Part I.C, Operation and Maintenance of the Sewer System of the Draft NPDES Permit. Part I.B, Unauthorized Discharges and Part I.C, Operation and Maintenance of the Sewer System include conditions that pertain to the operation and maintenance of the collection systems. The responsible municipal departments are:

Town of Franklin  
Town Administration  
355 East Central Street  
Franklin, MA 02038

Town of Medway  
Department of Public Services  
155 Village Street  
Medway, MA 02053

Town of Millis  
Department of Public Works  
Veterans Memorial Building  
900 Main Street  
Millis, MA 02054

Town of Bellingham  
Department of Public Works  
26 Blackstone Street  
Bellingham, MA 02019

RECEIVING WATER: Charles River (MA 72 - 05)

CLASSIFICATION: B (warm water fishery)

**PROPOSED ACTION**

Decision to Partially Reopen the Draft Permit for Public Comment

On July 3, 2008, the Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) released a Draft Permit for the Charles River Pollution Control District (CRPCD) wastewater treatment plant for public review and comment. The public comment period closed on August 1, 2008. Numerous comments were received, including comments from the CRPCD and



several of its member communities. Among the issues raised in the comments were the effluent limitation on total phosphorus and the legal basis for including several of the District member communities as co-permittees to the NPDES Draft Permit. The Draft Permit requirements that applied to the co-permittees were Sections I.B and I.C., which concern sewer system operation and maintenance and unauthorized discharges. Since the close of the public comment period, events have occurred that have influenced EPA's determinations regarding the Draft Permit.

Therefore, EPA and MassDEP have decided to partially reopen the Draft Permit for public comment on the following requirements in the Draft Permit; the total phosphorus limits, the addition of co-permittees for sewer system operation and maintenance and unauthorized discharges, recently revised requirements for submitting monitoring and reporting data and recently updated requirements of standard permit conditions. The specific changes are discussed in detail in this fact sheet. The fact sheet for the 2008 permit is also attached (see Attachment 2, 2008 Fact Sheet) so that the basis for the conditions in that version of the Draft Permit may be understood.

#### Phosphorus Limits

The total phosphorus limits in the partially revised Draft Permit have been changed to reflect the recommendations in the final version of the "*Total Maximum Daily Load (TMDL) for Nutrients in the Upper/Middle Charles River, Massachusetts Control Number: 272.0*". See <http://www.mass.gov/dep/water/resources/ucharles.doc>

#### Co-permittees

In a May 28, 2010 decision related to the appeal of the Upper Blackstone Water Pollution Abatement District permit, the Environmental Appeals Board (EAB) remanded to EPA conditions related to co-permittees, finding that EPA had failed to adequately articulate in the record of proceeding a rule-of-decision, or interpretation, identifying the statutory and regulatory basis for expanding the scope of NPDES authority beyond the treatment plant owner and operator to separately owned and operated collection systems. EPA Region I has conducted an evaluation of its legal authority and has developed a Regional permitting approach for satellite collection systems that supports the inclusion of the owners of satellite collection systems as co-permittees. The permitting strategy, has been included as **Attachment 1, EPA REGION 1 NPDES PERMITTING APPROACH FOR PUBLICLY OWNED TREATMENT WORKS THAT INCLUDE MUNICIPAL SATELLITE SEWAGE COLLECTION SYSTEM** to this fact sheet.

#### Monitoring and Reporting

The partially revised Draft Permit includes reporting requirements using NetDMR. NetDMR is a national tool for permittees to submit discharge monitoring reports (DMRs) electronically via a secure Internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 CFR 122.41 and 403.12.

#### Revisions of Standard Permit Conditions

During the extended period since the Draft Permit was released for public comment, EPA has updated several standard permit conditions pertaining to collection system operation and maintenance, and monitoring report submissions. These updated conditions are also included in the partially revised Draft Permit, and are also described in a later section of this fact sheet.

EPA is soliciting public comment on those revisions.

### Scope of Opening

In accordance with 40 CFR § 124.14(c), comments filed on this Draft Permit during the reopened comment period are limited to the “substantial new questions that caused its reopening.” Substantial new questions that caused its reopening are the revised total phosphorus limitations based on new information and data in the TMDL report, the inclusion of the satellite sewer communities as limited co-permittees, the permittee and co-permittees responsibilities in Part I.C, Operation and Maintenance of the Sewer System, and the revisions in Part I. I Monitoring and Reporting, and Part I.J Standard Permit Conditions. Comments on other conditions of the permit will not be accepted. EPA will respond to all comments received on the 2008 Draft Permit and this partial reopening in its final permit decision.

### PERMIT BASIS AND EXPLANATION OF CHANGES

#### Phosphorus

Phosphorus is an essential nutrient for plant growth but, excessive amounts of phosphorus in a water body has the potential to accelerate stream eutrophication, characterized by excessive plant growth, low dissolved oxygen and, large diurnal swings in dissolved oxygen in the water body. The range of the monthly average phosphorus data reported on the facility’s discharge monitoring reports (DMRs) for the period from January 2009 through May 2012 was 0.07 mg/l to 2.07 mg/l.

The 2008 Draft Permit included a 0.12 mg/l monthly average limit for total phosphorus for the months of April through October, which was based on achieving EPA Gold Book criteria of 0.10 mg/l in the receiving water during the growing season, and a 1.0 mg/l monthly average limit for the months of November through March based on limiting the amount of particulate phosphorus in the discharge that would settle in the receiving water and be bioavailable during the growing season.

#### Regulatory Background

Massachusetts Water Quality Standards do not include numeric criteria for phosphorus. The Standards include narrative criteria, including, in 314 CMR 4.05(5)(c) that states “Unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site specific criteria developed in a TMDL or as otherwise established by the Department pursuant to 314 CMR 4.00.” Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs and BAT for non POTWs, to remove such nutrients to ensure protection of existing and designated uses.”

In the absence of numeric criteria or a TMDL, EPA would interpret the narrative criteria using the procedures found at 40 CFR Part 122.44(d)(1)(vi), including the use of available guidance and other relevant information. In the fact sheet for the 2008 Draft Permit, EPA determined that there was reasonable potential for the discharge of phosphorus by the facility to cause or contribute to an exceedance of water quality standards, using the Gold Book-recommended criteria, and also established the monthly average limit using the criteria. The fact sheet for the 2008 Draft Permit includes a detailed discussion of the

process used by EPA to develop the phosphorus limits proposed in the 2008 Draft Permit. See Attachment 2, 2008 Fact Sheet.

The TMDL includes a phosphorus waste load allocation for the major and minor POTWs discharging into this segment of the river. Section 3 of the TMDL report discusses nutrient enrichment as it relates to this segment of the river and presents data used in the formulation of the suggested waste load allocation for the major POTWs. Section 7 of the TMDL recommends that reissued NPDES permits for the major POTWs in this reach of the river include total phosphorus limits of 0.10 mg/l from April through October and 0.30 mg/l from November through March. Regulations at 40 CFR 122.44(d)(1)(vii)(B) require that effluent limitations developed to protect water quality criteria be consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7.

#### Limit Derivation/Compliance Schedule

The phosphorus limits, required by the TMDL, have been incorporated in the partially revised Draft Permit and are more stringent than the limits in the 2008 Draft Permit. A review of phosphorus data submitted on the Town's DMRs from January 2009 through May 2012 as shown in Table 1, Total Phosphorus DMR Data below indicates that the facility's effluent phosphorus concentrations are greater than the proposed permit limits, indicating that upgrades to the facility will be necessary to achieve the established limits. Extensive upgrades to treatment plant are being planned.

The CRPCD recognizes that upgrades to the treatment plant will have to be completed to be in compliance with the TMDL and has begun work on a preliminary design for the upgrades. A four year design/build schedule has been projected for completion of the necessary upgrades. Attachment 3, Charles River Pollution Control District Facility Upgrades, presents a list of process upgrades under consideration between CRPCD and their consultants.

Accordingly, a schedule of compliance has been included in the partially revised Draft Permit for attaining the proposed total phosphorus limits. The compliance schedule provides 48 months from the effective date of the permit for the completion of the necessary construction upgrades.

EPA believes this is a reasonable schedule of compliance, but invites comments from the permittee and other interested parties regarding the length of this schedule. The partially revised Draft Permit includes an interim monthly average limit of 0.2 mg/l for the months of April through October, and an interim monthly average limit of 1.0 mg/l for the months of November through March. These are the total phosphorus limits in the existing permit.

Month/Year	Mo.Avg (mg/l)	Month/Year	Mo.Avg (mg/l)	Month/Year	Mo.Avg (mg/l)	Month/Year	Mo.Avg (mg/l)
01/2009	0.53	01/2010	1.8	01/2011	0.08	01/2012	0.65
02/2009	0.68	02/2010	0.88	02/2011	0.40	02/2012	0.86
03/2009	0.91	03/2010	1.6	03/2011	0.35	03/2012	0.52
04/2009	0.19	04/2010	0.25	04/2011	0.12	04/2012	0.34
05/2009	0.31	05/2010	0.15	05/2011	0.20	05/2012	0.62
06/2009	2.07	06/2010	0.18	06/2011	0.21		
07/2009	0.75	07/2010	0.15	07/2011	0.13		
08/2009	0.14	08/2010	0.15	08/2011	0.15		
09/2009	0.18	09/2010	0.19	09/2011	0.19		
10/2009	0.39	10/2010	0.65	10/2011	0.20		
11/2009	0.49	11/2010	0.21	11/2011	0.63		
12/2009	1.0	12/2010	0.070	12/2011	0.59		

Co-Permittees

The Towns of Franklin, Medway, Millis and, Bellingham were listed as co-permittees on the 2008 Draft Permit and shall remain co-permitttees on the partially revised Draft Permit. Each Town owns and operates a separate section of the sewer collection system that transports sewage to the CRPCD’s facility for treatment. As in the 2008 Draft Permit, the co-permittees are only subject to the requirements in Part I B, Unauthorized Discharges and Part I.C, Operation and Maintenance of the Sewer System of the partially revised Draft Permit. Comments received on the 2008 Draft Permit included comments from CRPCD and its satellite sewer communities opposing the inclusion of the satellite sewer communities as limited co-permittees.

On May 28, 2010, the Environmental Appeals Board (EAB) remanded to EPA the co-permitting provisions in a permit issued to the Upper Blackstone Water Pollution Abatement District in Millbury, Massachusetts, a large publicly owned treatment plant. These conditions had been appealed to the EAB by the permittee and four of its satellite communities. In its order, the EAB found that EPA had not adequately articulated in the record of the proceeding a rule-of-decision, or interpretation, identifying the statutory and regulatory basis for expanding the scope of NPDES authority beyond the treatment plant owner and operator to separately owned and operated collection systems that discharge to the treatment plant, and gave EPA the options of providing the appropriate legal and technical basis for supporting the co-permitting provision, or withdrawing the provisions. In the interest of quickly placing other contested provisions into effect, EPA withdrew the co-permitting requirements in that permit. See <http://www.epa.gov/region1/npdes/permits/2010/finalma0102369DeterminationOnRemand.pdf>

However, since that time, EPA Region 1 has developed a more comprehensive factual and legal rationale for its decision to regulate satellite collection systems. Attachment 1 of this fact sheet is a copy of “**EPA REGION 1 NPDES PERMITTING APPROACH FOR PUBLICLY OWNED TREATMENT WORKS THAT INCLUDE MUNICIPAL SATELLITE SEWAGE COLLECTION SYSTEMS**”. This document establishes legal authority to include satellite communities as co-permittees.

### Unauthorized Discharges

The requirements in Part I. B, Unauthorized Discharges (Part I. B) allows discharges from the facilities that are in accordance to the terms and conditions of the Draft Permit. The only discharge authorized from this facility is the treatment plant outfall, as listed in Part I.A.1. All other discharges are prohibited including sanitary sewer overflows (SSOs).

Part I.B also requires that all unauthorized discharges, including sanitary sewer overflows be reported in accordance with general requirements of Part II, Standard Conditions of the Draft Permit. Therefore, the Towns that own and operate satellite collection systems are subject to this Part for the sections of the collections systems it owns and operates and unauthorized discharge from these collection systems must be reported by the owner.

The Part I.B requirements in the partially revised Draft Permit are the same as in the original Draft Permit.

### Operation and Maintenance of the Sewer System

Part I.C, Operation and Maintenance of the Sewer System (Part I.C) has also been reopened for public comment. The standard language and requirements in Part I. C have been updated from the requirements in the 2008 Draft Permit. The revised language and requirements reflect the standard requirements for all NPDES permits now being drafted for publicly owned treatment works in Massachusetts.

The revisions in Part I.C require CRPCD and each co-permittee to develop a collection system operation and maintenance plan, and to map its sanitary sewer system. The schedule for completing the collection system operation and maintenance plan has two milestones.

The first milestone is that within six (6) months of the effective date of the permit, the permittee and each co-permittee shall submit to EPA and MassDEP a description of the collection system management goals, staffing, information management, and legal authorities; a description of the overall condition of the collection system including a list of recent studies and construction activities; and a schedule for the development and implementation of the full Collection System O & M Plan.

The second milestone is that within twenty four (24) months from the effective date of the permit, the full Collection System O & M Plan shall be implemented, and a copy of the permittee's and each co-permittee's plan shall be submitted to EPA and MassDEP. The final plan is required to include: a preventative maintenance and monitoring program for the collection system; sufficient staffing to properly operate and maintain the sanitary sewer collection system; sufficient funding and the source(s) of funding for implementing the plan; identification of known and suspected overflows and back-ups, including manholes, a description of the cause of the identified overflows and back-ups, and a plan for addressing the overflows and back-ups consistent with the requirements of the permit; a description of the permittees and each co-permittees programs for preventing I/I-related effluent violations and all unauthorized discharges of wastewater, including overflows and bypasses, and an ongoing program to identify and remove sources of I/I. The program is required to also include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts; and an educational public outreach program for all aspects of I/I control, particularly private inflow.

The permit also requires that sanitary sewer mapping be completed within thirty (30) months of the effective date of the permit, and includes specific information to be recorded on the maps.

## Monitoring and Reporting

Part 1.I Monitoring and Reporting in the Draft Permit includes the new provisions related to the electronic submittals of Discharge Monitoring Reports (DMRs) known as NetDMR. NetDMR is a national tool for regulated Clean Water Act permittees to submit discharge monitoring reports (DMRs) electronically via a secure Internet application to the 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 a Web-based tool that allows NPDES permittees to electronically sign and submit their discharge monitoring reports (DMRs) to EPA's [Integrated Compliance Information System \(ICIS-NPDES\)](#) via the [Environmental Information Exchange Network](#).

NetDMR will reduce the burden on EPA, states, and the regulated community; improve data quality; and expand the ability of both states and EPA in targeting their limited resources to meet environmental goals. An essential component of NetDMR when fully implemented will be the exchange of data with ICIS-NPDES allowing permittees to complete a DMR that is specific to their permit limits and outfalls.

## Standard Permit Conditions

The language in Part 1.J, Standard Permit Conditions of the partially revised Draft Permit has also been updated. It includes information of the federal and state permit authorizations as they apply to the issuance of an NPDES permit and, provides information on the water quality certification authorization issued by MassDEP.

### **III. STATE CERTIFICATION REQUIREMENTS**

Staff of MassDEP have reviewed the partially revised Draft Permit. EPA has requested permit certification by the State pursuant to CWA § 401(a)(1) and 40 CFR § 124.53 and expects that the Draft Permit, as revised, will be certified.

### **IV. COMMENT PERIOD, HEARING REQUESTS, and PROCEDURES FOR FINAL DECISIONS**

All persons, including applicants, who believe the revised conditions of the partially revised Draft Permit are 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 Betsy Davis, U.S. EPA, Office of Ecosystem Protection, Municipal Permits Section, 5 Post Office Square-Suite 100, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing for a public hearing to consider the revised conditions in the partially revised Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held if the criteria stated in 40 CFR § 124.12 are satisfied. In reaching a final decision on the Draft Permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Pursuant to 40 CFR 124.17, at the time the final permit decision is issued, EPA will also issue a response to comments, which will include responses to all significant comments submitted on the 2008 Draft permit and on the 2012 partially revised Draft Permit.

**V. EPA AND MassDEP CONTACTS**

Additional information concerning the permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays, from:

Betsy Davis  
US Environmental Protection Agency  
5 Post Office Square  
Suite 100 (CMA)  
Boston, Massachusetts 02109-3912  
Telephone: (617) 918-1576  
Fax: (617) 918-0565  
Email: [davis.betsy@epamail.epa.gov](mailto:davis.betsy@epamail.epa.gov)

or

Kathleen Keohane  
MA Department of Environmental Protection  
Division of Watershed Management  
627 Main Street  
Worcester, MA 01608  
Telephone: (508)767-2856  
Fax: (508) 791-4131  
Email: [kathleen.keohane@state.ma.us](mailto:kathleen.keohane@state.ma.us)

\_\_\_\_\_  
Date

Stephen S. Perkins, Director\*  
Office of Ecosystem Protection  
U.S. Environmental Protection System

Comments should be addressed to both Betsy Davis and Kathleen Keohane, not Stephen S. Perkins.

## Attachment 1

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

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

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

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

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

In light of these policy objectives and legal requirements, it is Region 1's permitting practice to subject all portions of the POTW to NPDES requirements in order to ensure that the treatment

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



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

The factual and legal basis for the Region’s position is set forth in greater detail in *Attachment A*.

## Attachment A

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

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

#### Introduction

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

- (1) In the case of a regionally integrated POTW composed of municipal satellite collection systems owned by different entities and a treatment plant owned by another, is the scope of NPDES authority limited to owners/operators of the POTW treatment plant, or does the authority extend to owners/operators of the municipal satellite collection systems that convey wastewater to the POTW treatment plant?

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<sup>2</sup> The decision is available on the Board’s website via the following link:  
[http://yosemite.epa.gov/oa/EAB\\_Web\\_Docket.nsf/30b93f139d3788908525706c005185b4/34e841c87f346d94852577360068976f!OpenDocument](http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/30b93f139d3788908525706c005185b4/34e841c87f346d94852577360068976f!OpenDocument).

- (2) If the latter, how far up the collection system does NPDES jurisdiction reach, *i.e.*, where does the “collection system” end and the “user” begin?
- (3) Do municipal satellite collection systems “discharge [ ] a pollutant” within the meaning of the statute and regulations?
- (4) Are municipal satellite collection systems “indirect dischargers” and thus excluded from NPDES permitting requirements?
- (5) Is the Region’s rationale for regulating municipal satellite collection systems as co-permittees consistent with the references to “municipality” in the regulatory definition of POTW, and the definition’s statement that “[t]he term also means the municipality...which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works”?
- (6) Is the Region’s rationale consistent with the permit application and signatory requirements under NPDES regulations?

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

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

## I. Background

A sanitary sewer system (SSS) is a wastewater collection system owned by a state or municipality that conveys domestic, industrial and commercial wastewater (and limited amounts of infiltrated groundwater and some storm water runoff ) to a POTW.<sup>3</sup> See 40 C.F.R. §

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

35.2005(b)(37) (defining “sanitary sewer”). The purpose of these systems is to transport wastewater uninterrupted from its source to a treatment facility. Developed areas that are served by sanitary sewers often also have a separate storm sewer system (*e.g.*, storm drains) that collects and conveys runoff, street wash waters and drainage and discharges them directly to a receiving water (*i.e.*, without treatment at a POTW). While sanitary sewers are not designed to collect large amounts of runoff from precipitation events or provide widespread drainage, they typically are built with some allowance for higher flows that occur during periods of high groundwater and storm events. They are thus able to handle minor and controllable amounts of extraneous flow (*i.e.*, inflow and infiltration, or I/I) that enter the system. Inflow generally refers to water other than wastewater—typically precipitation like rain or snowmelt—that enters a sewer system through a direct connection to the sewer. Infiltration generally refers to other water that enters a sewer system from the ground, for example through defects in the sewer.

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

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

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

There are many underlying reasons for the poor performance of collection systems. Much of the nation’s sanitary sewer infrastructure is old, and aging infrastructure has deteriorated with time. Communities also sometimes fail to provide capacity to accommodate increased sewage delivery and treatment demand from increasing populations. Furthermore, institutional arrangements relating to the operation of sewers can pose barriers to coordinated action, because many

municipal sanitary sewer collection systems are not entirely owned or operated by a single municipal entity.

The performance and efficiency of municipal sanitary sewer collection systems influence the performance of sewage treatment plants. When the structural integrity of a municipal sanitary sewer collection system deteriorates, large quantities of infiltration (including rainfall-induced infiltration) and inflow can enter the collection system, causing it to overflow. These extraneous flows are among the most serious and widespread operational challenges confronting treatment works.<sup>4</sup>

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

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

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

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

Human health impacts occur when people become ill due to contact with water or ingestion of water or shellfish that have been contaminated by SSO discharges. In addition, sanitary sewer

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

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

## II. Region 1 Past Practice of Permitting POTWs that Include Municipal Satellite Collection Systems

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

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

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

In implementing the I/I conditions, Region 1 initially sought to maintain the same structure, placing the responsibility on the regional sewer district to require I/I activities by the contributing

systems and to collect the necessary information from those systems for submittal to EPA. MassDEP's 2001 Interim I/I Policy reflected this approach, containing a condition for regional systems:

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

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

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

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

representative systems). Addressing these issues in regional systems was essential, as these include most of the largest systems in terms of flow, population served and area covered.

The Region's practice of imposing NPDES permit conditions on the municipal collection systems in addition to the treatment plant owner/operator represents a necessary and logical progression in its continuing effort to effectively address the serious problem of I/I in sewer collection systems.<sup>5</sup> In light of its past permitting experience and the need to effectively address the problem of extraneous flow on a system-wide basis, Region 1 decided that it was necessary to refashion permits issued to regionally integrated POTWs to include all owners/operators of the treatment works (*i.e.*, the regional centralized POTW treatment plant and the municipal satellite collection systems).<sup>6</sup> Specifically, Region 1 determined that the satellite systems should be subject as co-permittees to a limited set of O&M-related conditions on permits issued for discharges from regionally integrated treatment works. These conditions pertain only to the portions of the POTW collection system that the satellites own. This ensures maintenance and pollution control programs are implemented with respect to all portions of the POTW. Accordingly, since 2005, Region 1 has generally included municipal satellite collection systems as co-permittees for limited purposes while it required the owner/operator of the treatment plant, as the primary permittee, to comply with the full array of NPDES requirements, including secondary treatment and water-quality based effluent limitations. The Region has identified 25 permits issued by the Region to POTWs in New Hampshire and Massachusetts that include municipal satellite collection systems as co-permittees. *See Exhibit A.* The 25 permits include a total of 55 satellite collection systems as co-permittees.

### III. Legal Authority

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<sup>5</sup> Although the Region has in the past issued NPDES permits only to the legal entities owning and operating the wastewater treatment plant (*i.e.*, only a portion of the "treatment works"), the Region's reframing of permits to include municipal satellite collection systems does not represent a break or reversal from its historical legal position. Region 1 has never taken the legal position that the satellite collection systems are beyond the reach of the CWA and the NPDES permitting program. Rather, the Region as a matter of discretion had merely never determined it necessary to exercise its statutory authority to directly reach these facilities in order to carry out its NPDES permitting obligations under the Act.

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

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



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

*(1) In the case of a regionally integrated POTW composed of municipal satellite collection systems owned by different entities and a treatment plant owned by another, is the scope of NPDES authority limited to owners/operators of the POTW treatment plant, or does the authority extend to owners/operators of the municipal satellite collection systems that convey wastewater to the POTW treatment plant?*

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

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

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

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

Under section 212 of the Act,

“(2)(A) The term ‘treatment works’ means any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature to implement section 1281 of this title, or necessary to recycle or reuse water at the most economical cost over the estimated life of the works, including intercepting sewers, outfall sewers, *sewage collection systems* [emphasis added], pumping, power, and other equipment, and their appurtenances; extensions, improvements, remodeling, additions, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities; and any works, including site acquisition of the land that will be an integral part of the treatment process (including land used for the storage of treated wastewater in land treatment systems prior to land application) or is used for ultimate disposal of residues resulting from such treatment.

(B) In addition to the definition contained in subparagraph (A) of this paragraph, ‘treatment works’ means any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste, including storm water runoff, or industrial waste, including waste in combined storm water and *sanitary sewer systems* [emphasis added]. Any application for construction grants which includes wholly or in part such methods or systems shall, in accordance with guidelines published by the Administrator pursuant to subparagraph (C) of this paragraph, contain adequate data and analysis demonstrating such proposal to be, over the life of such works, the most cost efficient alternative to comply with sections 1311 or 1312 of this title, or the requirements of section 1281 of this title.”

EPA has defined POTW as follows:

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

See 40 C.F.R. §§ 403.3(q) and 122.2.

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

The statutory and regulatory definitions plainly encompass both the POTW treatment plant and municipal satellite collection systems conveying wastewater to the POTW treatment plant even if the treatment plant and the satellite collection system have different owners. Municipal satellite collection systems indisputably fall within the definition of a POTW. First, they are “sewage collection systems” under section 212(A) and “sanitary sewer systems” under section 212(B). Second, they convey wastewater to a POTW treatment plant for treatment under 40 C.F.R. § 403.3(q). The preamble to the rule establishing the regulatory definition of POTW supports the reading that the treatment plant comprises only one portion of the POTW. *See* 44 Fed. Reg. 62260, 62261 (Oct. 29, 1979).<sup>7</sup> Consistent with Region 1’s interpretation, courts have similarly taken a broad reading of the terms treatment works and POTW.<sup>8</sup> Finally, EPA has long recognized that a POTW can be composed of different parts, and that sometimes direct control is required under a permit for all parts of the POTW system, not just the POTW treatment plant segment. *See Multijurisdictional Pretreatment Programs Guidance Manual*, Office of Water (4203) EPA 833-B-94-005 (June 1994) at 19. (“If the contributing jurisdiction owns or operates the collection system within its boundaries, then it is a co-owner or operator of the POTW. As such, it can be included on the POTW’s NPDES permit and be required to develop a pretreatment program. Contributing jurisdictions should be made co-permittees where circumstances or experience indicate that it is necessary to ensure adequate pretreatment program implementation.”). The Region’s interpretation articulated here is consistent with the precepts of the pretreatment program, which pertains to the same regulated entity, i.e., the POTW.<sup>9</sup>

Thus, under the statutory and regulatory definitions, a satellite collection system owned by one

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<sup>7</sup> “A new provision...defining the term ‘POTW Treatment Plant’ has been added to avoid an ambiguity that now exists whenever a reference is made to a POTW (publicly owned treatment works). ...[T]he existing regulation defines a POTW to include both the treatment plant and the sewer pipes and other conveyances leading to it. As a result, it is unclear whether a particular reference is to the pipes, the treatment plant, or both. The term “POTW treatment plant” will be used to designate that portion of the municipal system which is actually designed to provide treatment to the wastes received by the municipal system.”

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

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

municipality that transports municipal sewage to another portion of the POTW owned by another municipality can be classified as part of a single integrated POTW system discharging to waters of the U.S.

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

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

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

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

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

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

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

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

40 C.F.R. § 122.2 defines “discharge of a pollutant” as follows:

“Discharge of a pollutant means:

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

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

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

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

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

<sup>12</sup> Some municipal satellite collection systems have argued that the addition of pollutants to waters of the United States from pipes, sewers or other conveyances that go to a *treatment plant* are not a “discharge of a pollutant” under 40 C.F.R. § 122.2. This is erroneous. Only one category of such discharges is excluded: indirect discharges. For the reasons explained below in section 4, the satellite system discharges at issue here are not indirect discharges. It is correct that the discharge of wastewater that does not go to the treatment works is included as a discharge under

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

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

Section 307(b) of the Act requires EPA to establish regulatory pretreatment requirements to prevent the “introduction of pollutants into treatment works” that interfere, pass through or are otherwise incompatible with such works. Section 307 is implemented through the General Pretreatment Regulations for Existing and New Sources of Pollution (40 C.F.R. Part 403) and categorical pretreatment standards (40 C.F.R. Parts 405-471). Section 403.3(i) defines “indirect discharger” as “any non-domestic” source that introduces pollutants into a POTW and is regulated under pretreatment standards pursuant to CWA § 307(b)-(d). The source of an indirect discharge is termed an “industrial user.” *Id.* at § 403.3(j). Under regulations governing the NPDES permitting program, the term “indirect discharger” is defined as “a non-domestic discharger introducing ‘pollutants’ to a ‘publicly owned treatment works.’” 40 C.F.R. § 122.2. Indirect dischargers are excluded from NPDES permit requirements at 40 C.F.R. § 122.3(c), which provides, “The following discharges do not require an NPDES permit: . . . The introduction of sewage, industrial wastes or other pollutants into publicly owned treatment works by indirect dischargers.”

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

The Region’s determination that municipal satellite collection systems are not indirect dischargers is, additionally, consistent with the regulatory history of the term indirect discharger. The 1979 revision of the part 122 regulations defined “indirect discharger” as “a non-municipal, non-domestic discharger introducing pollutants to a publicly owned treatment works, which introduction does not constitute a ‘discharge of pollutants’...” *See* National Pollutant Discharge

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the definition. However, interpreting the *inclusion* of such discharges under the definition as categorically *excluding* the conveyance of other discharges that do go to the treatment works is not a reasonable reading of the regulation. This argument is also flawed in that it incorrectly equates “treatment works,” the term used in the definition above, with “treatment plant.” To interpret “treatment works” as it appears in the regulatory definition of “discharge of a pollutant” as consisting of only the POTW treatment plant would be inconsistent with the definition of “treatment works” at 40 C.F.R. § 403.3(q), which expressly includes the collection system. *See also* § 403.3(r) (defining “POTW Treatment Plant” as “*that portion* [emphasis added] of the POTW which is designed to provide treatment (including recycling and reclamation) of municipal sewage and industrial waste.”)

Elimination System, 44 Fed. Reg. 32854, 32901 (June 7, 1979). The term “non-municipal” was removed in the Consolidated Permit Regulations, 45 Fed. Reg. 33290, 33421 (May 19, 1980) (defining “indirect discharger” as “a nondomestic discharger...”). Although the change was not explained in detail, the substantive intent behind this provision remained the same. EPA characterized the revision as “minor wording changes.” 45 Fed. Reg. at 33346 (Table VII: “Relationship of June 7[, 1979] Part 122 to Today’s Regulations”). The central point again is that under any past or present regulatory incarnation, municipal satellite collection systems, as POTWs, are not within the definition of “indirect discharger,” which is limited to non-domestic sources subject to section 307(b) that introduce pollutants to POTWs.

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

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

The Region’s co-permitting rationale is consistent with the first part of the pretreatment program’s regulatory definition of POTW, because the Region is only asserting NPDES jurisdiction over satellite collection systems that are owned by a “State or municipality (as defined by section 502(4) of the Act).” The term “municipality” as defined in CWA § 502(4) “means a city, town, borough, county, parish, district, association, or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes...” Thus, in order to qualify under this definition, a wastewater collection system need only be “owned by a State or municipality.” There is no requirement that the constituent components of a regionally integrated POTW, *i.e.*, the collection system and regional centralized POTW treatment plant, be owned by the same State or municipal entity.

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

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

“Any person who discharges or proposes to discharge pollutants”... must comply with permit application requirements set forth in 40 C.F.R. § 122.21 (“Application for a Permit”), including the duty to apply in subsection 122.21(a). It is the operator’s duty to obtain a permit. *See* 40

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

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

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

The Region imposes requirements on co-permittees when it determines that they are necessary to assure continued achievement of effluent limits based on secondary treatment requirements and state water quality standards in accordance with sections 301 and 402 of the Act, and to prevent unauthorized discharges of sewage from downstream collection systems. With respect to achieving effluent limits, the inclusion of the satellite systems as co-permittees may be necessary when high levels of I/I dilute the strength of influent wastewater and increase the hydraulic load on treatment plants, which can reduce treatment efficiency (*e.g.*, result in violations of technology-based percent removal limitations for BOD and TSS due to less concentrated

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



influent, or violation of other technology-based or water quality-based effluent limitations due to reduction in treatment efficiency). Excess flows from an upstream collection system can also lead to bypassing a portion of the treatment process, or in extreme situations make biological treatment facilities inoperable (*e.g.*, wash out the biological organisms that treat the waste).

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

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

## V. Conclusion

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

**Exhibit A**

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

City of Pittsfield, Department of Public Works (NPDES No. MA0101681)	August 22, 2008
City of Manchester (NPDES No. NH0100447)	September 25, 2008
City of New Bedford (NPDES Permit No. MA0100781)	September 28, 2008
Winnepesaukee River Basin Program Wastewater Treatment Plant (NPDES Permit No. NH0100960)	June 19, 2009
City of Westfield (NPDES Permit No. MA0101800)	September 30, 2009
Hull Permanent Sewer Commission (NPDES Permit No. MA0101231)	September 1, 2009
Gardner Department of Public Works (NPDES Permit No. MA0100994)	September 30, 2009

## Exhibit B

### Analysis of extraneous flow trends and SSO reporting for representative systems

#### I. Representative POTWS

The **South Essex Sewer District (SESD)** is a regional POTW with a treatment plant in Salem, Massachusetts. The SESD serves a total population of 174,931 in six communities: Beverly, Danvers, Marblehead, Middleton, Peabody and Salem. The **Charles River Pollution Control District (CRPCD)** is a regional POTW with a treatment plant in Medway, Massachusetts. The CRPCD serves a total population of approximately 28,000 in four communities: Bellingham, Franklin, Medway and Millis. Both of these facilities have been operating since 2001 under permits that place requirements on the treatment plant to implement I/I reduction programs with the satellite collection systems, in contrast to Region 1's current practice of including the satellite collection systems as co-permittees.

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

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

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

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

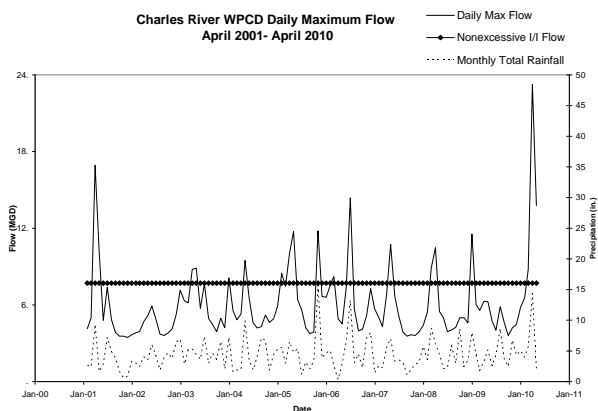
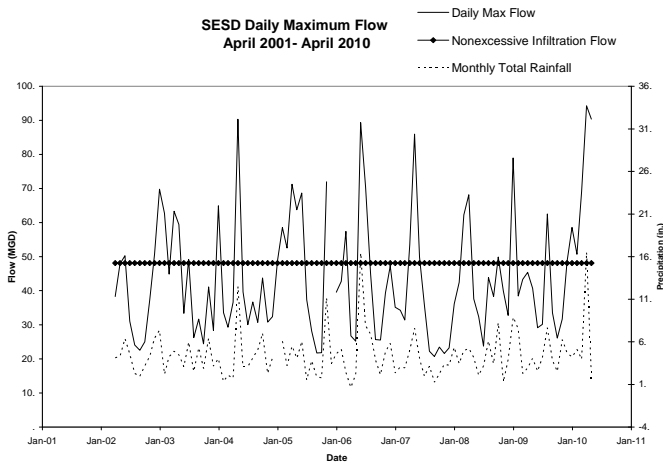


Figure 2. SESD Daily Maximum Flow Compared to Nonexcessive I/I Standard



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

Figure 3. CRPCD Monthly Average Flow Compared to Nonexcessive Infiltration Standard

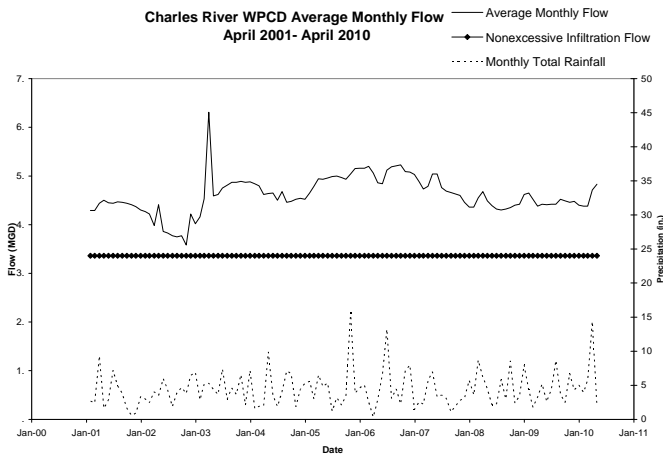
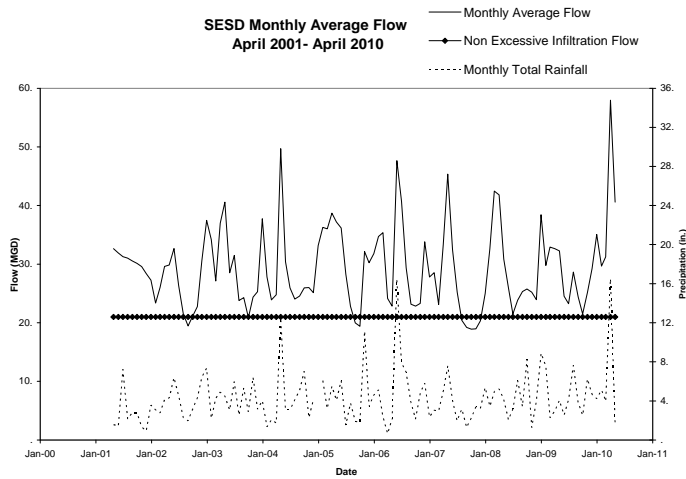


Figure 4. SESD Monthly Average Flow Compared to Nonexcessive Infiltration Standard



## II. Flow Trends

Figures 5 and 6 show the trend in Maximum Daily Flows over the period during which these regional facilities have been responsible for implementing cooperative I/I reduction programs with the satellite collection systems. The Maximum Daily Flow reflects the highest wet weather flow for each month. The trend over this time period has been of increasing Maximum Daily Flow, indicating that I/I has not been reduced in either system despite the permit requirements.

Figure 5. CRPCD Daily Maximum Flow Trend

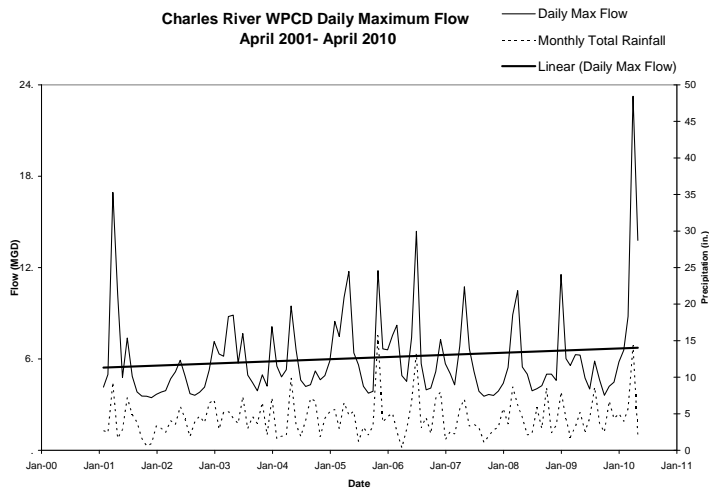
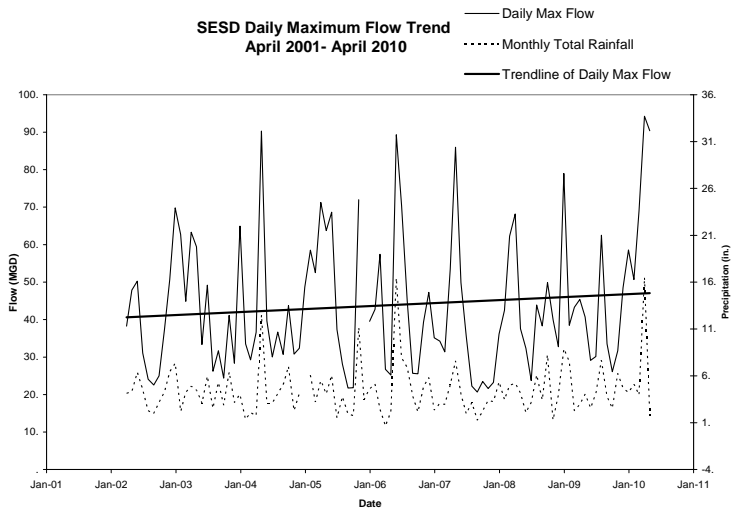


Figure 6. SESD Daily Maximum Flow Trend



### III. Violations Associated with Wet Weather Flows

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

Figure 7. CRPCD CBOD and TSS Effluent Limit Violations

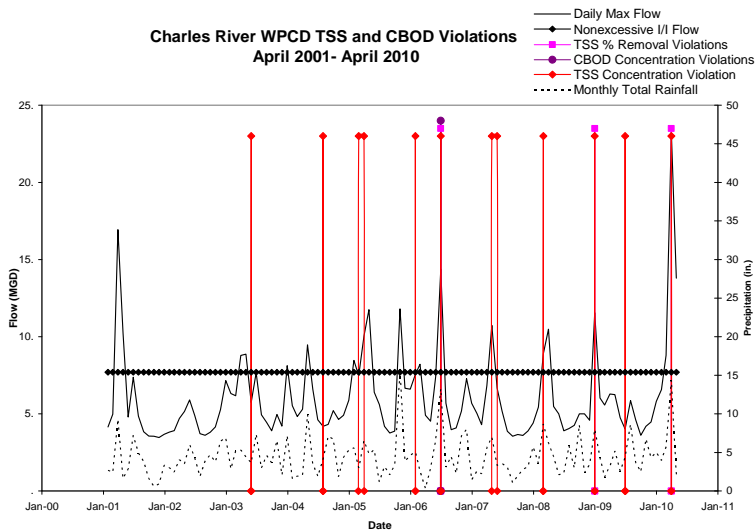
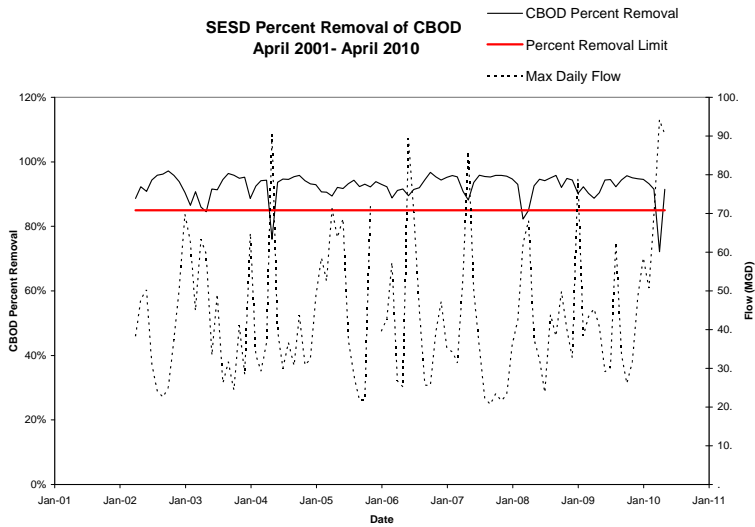


Figure 8 shows SESD's results for removal of CBOD, in percentage, as compared to maximum daily flow. SESD had three permit violations where CBOD removal fell below 85%, all during months with high Maximum Daily Flows.

Figure 8. SESD CBOD Percent Removal



#### IV. SSO Reporting

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



## Exhibit C

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



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

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

Dear \_\_\_\_\_:

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

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

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

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

Sincerely,

Regional Administrator

Attachment 2-2008 Fact Sheet

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND - REGION I  
ONE CONGRESS STREET  
BOSTON, MASSACHUSETTS 02114-2023

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 NO.: MA0102598

PUBLIC NOTICE DATE:  
NAME AND ADDRESS OF APPLICANT:

Charles River Pollution Control District  
66 Village Street  
Medway, Massachusetts 02053

The Towns of Franklin, Medway, Millis, and Bellingham are co-permittees for specific activities required in Sections I.B - Unauthorized Discharges and I.C - Operation and Maintenance of the Sewer System of the draft permit. Sections B - Unauthorized Discharges and C - Operation and Maintenance of the Sewer System include conditions regarding the operation and maintenance of the collection systems. The responsible municipal departments are:

Town of Franklin  
Department of Public Works  
150 Emmons Street  
Municipal Building, Lower Level  
Franklin, MA 02038

Town of Medway  
Department of Public Services  
155 Village Street  
Medway, MA 02053

Town of Millis  
Department of Public Works  
Veterans Memorial Building  
900 Main Street  
Millis, MA 02054

Town of Bellingham  
Department of Public Works  
26 Blackstone Street  
Bellingham, MA 02019

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Charles River Pollution Control District  
Water Pollution Abatement Facility  
66 Village Street  
Medway, Massachusetts 02053

RECEIVING WATER: Charles River (MA 72 - 05)

CLASSIFICATION: B (warm water fishery)

### **I. PROPOSED ACTION**

The above named applicant has requested that the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) reissue its NPDES permit to discharge into the designated receiving water, the Charles River. The current permit was issued on September 29, 2000, modified October 25, 2000, November 13, 2000, and April 22, 2002. The permit expired September 29, 2004, and was administratively continued. This permit will expire five (5) years from the effective date of the reissued permit.

The applicant filed a complete application for permit reissuance as required by 40 Code of Federal Regulations (CFR) § 122.6.

### **II. TYPE OF FACILITY AND DISCHARGE LOCATION**

The facility is engaged in the collection and treatment of wastewater from the towns of Franklin, Medway, Millis, and central and north Bellingham and serves approximately 28,000 people and four significant industrial users.

The existing permit authorizes a discharge from Outfall 001 to the Charles River as shown on **Figure 1**. The draft permit has been written to reflect the current operation and conditions at the facility.

### **III. DESCRIPTION OF THE DISCHARGE**

The Charles River Pollution Control District Water Pollution Abatement Facility (CRPCD WPAF) (**Figures 2 and 3**) is an advanced plant providing treatment to domestic, commercial, and industrial wastewater. The plant was expanded and upgraded in 2000 to increase the capacity of the flow from 4.5 to 5.7 MGD. The upgrades included an anoxic biological selector for filamentous bacteria control, two fine bubble diffused aeration basins to increase the aeration capacity, four 12-cloth disk filters to supplement the existing sand filters, and an upgrade to the plants electrical system. In 2003, new piping and pumps for the ferric chloride, ferrous sulfate, and lime systems were installed, and a hydrated lime mixing system was installed to replace the quick lime slaking system.

The unit processes and equipment at the plant now consist of a Parshall flume, two automatic bar racks, three influent pumps (lead/lag/standby), two aerated grit tanks where lime is added for pH control and ferric chloride for phosphorus control, two primary clarifiers, an anoxic selector, two fine bubble aeration chambers, eight mechanical aeration tanks, four secondary clarifiers, and four cloth filter basins. Solids are captured on the filter cloth and backwashed to the headworks, and the filtered water continues to the chlorine contact chamber. There are additional gravity sand filters for high flow periods. The effluent is disinfected in two chlorine contact chambers (Cl<sub>2</sub> gas), dechlorinated with sodium bisulfate, passes down effluent cascade steps, and flows 3,375 feet through the outfall pipe to the Charles River.

The facility receives approximately 25,000 gallons of septage per day from Franklin, Medway, Millis, Bellingham, Norfolk, Sherborn, Dover, and Wrentham. There are two septage tanks, which are filled and batch discharged by gravity into the headworks. One septage tank is typically all that is needed however, the other tank is available for haulers to discharge into if it is needed. The facility checks the pH of each septage delivery and conducts micro-toxicity testing of the septage tank once per week. Ferrous chloride is added to the wet wells for odor control.

Primary sludge is pumped to a gravity belt thickener. Secondary sludge flows to the wet well and is

pumped to the gravity thickener with polymer added to aid thickening. The 7% solids sludge is held in wet wells and then trucked to the incinerator at Synagro in Woonsocket, RI.

A quantitative description of the discharge in terms of significant effluent parameters based on recent monitoring data is shown in **Fact Sheet Tables 1 and 2**.

#### **IV. LIMITATIONS AND CONDITIONS**

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

#### **V. PERMIT BASIS AND EXPLANATION OF EFFLUENT LIMITS DERIVATION**

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

##### **Regulatory Basis.**

EPA is required to consider technology and water quality requirements when developing permit effluent limits. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 402 and 301(b) of the Clean Water Act (CWA) (see 40 CFR 125 Subpart A). For publicly owned treatment works (POTWs), technology based requirements are the effluent limits based on secondary treatment defined in 40 CFR Part 133. EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are 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 limits based on water quality standards. The Massachusetts Surface Water Quality Standards (314 CMR 4.00) include requirements for the regulation and control of toxic constituents and also require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless a site-specific criteria is established. The state will limit or prohibit discharge of pollutants to surface waters to assure that water quality of the receiving waters are protected and maintained, or attained.

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

##### **Waterbody Classification and Usage**

The Charles River is classified as a Class B warm water fishery by the Massachusetts Surface Water Quality Standards [314 CMR 4.05(3)(b)]. Class B waters are designated as habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. Where designated, they shall be suitable as a source of public water supply with appropriate treatment. They shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value.

Section 303(d) of the Federal Clean Water Act (CWA) requires states to identify those waterbodies that are not expected to meet surface water quality standards after implementation of technology-based controls and as such require the development of total maximum daily loads (TMDL). The CRPCD WPAF discharges into Charles River segment MA 72-05, which extends from below Populatic Pond on the Norfolk/Medway line to the South Natick Dam. The Massachusetts Year 2006 Integrated List of Waters [Section 303(d) list] identifies segment MA-72-05 and segments downstream from the facility as not attaining water quality standards. Segment 72-05 is listed as impaired by unknown toxicity, metals, nutrients, organic enrichment/low dissolved oxygen, pathogens, noxious aquatic plants, and turbidity.

EPA and MassDEP have awarded grants to the Charles River Watershed Association (CRWA) for the Upper Charles River Watershed Total Maximum Daily Load Project (# 2001-03/104). Under these grants, CRWA has collected wet and dry weather water quality and flow data, is estimating pollutant loads from sources such as land use, septic systems, atmospheric deposition, sediment resuspension, and point sources, and is determining receiving water concentrations, estimating loading capacity; and establishing load allocations by source category. This information will be used to establish load allocations by source category and will be used by MassDEP to develop a TMDL and to evaluate Water Management Act and groundwater discharge permits for the Charles River watershed.

**Plant Design Flow**

The design flow of the plant is now 5.7 MGD. Plant flow is measured at the influent Parshall flume. The annual average flow rate was 5.16 MGD in 2005, 5.03 MGD in 2006 and 4.36 MGD in 2007. The range of the maximum daily flow rate between January 2005 and December 2007 was 3.55 MGD and 14.38 MGD.

During the 2000 public notice period, the District commented that they would not need the design capacity during the term of the permit in the summer months. The permit issued in 2000 included a monthly average flow limit of 4.5 MGD from July through September and the effluent limits for those months were calculated based on a flow of 4.5 MGD. The table below compares the monthly minimum river flow at the USGS station in Dover and the plant discharge.

*Charles River Minimum Mean Daily Discharge at USGS Gage in Dover and Average Monthly Plant Effluent Flow*

Year	July		August		September	
	River Flow, MGD	Plant Flow, MGD	River Flow, MGD	Plant Flow, MGD	River Flow, MGD	Plant Flow, MGD
2000	15.48	3.76	14.19	3.67	9.03	3.62
2001	46.44	4.17	29.67	3.51	19.35	3.35
2002	21.93	3.43	5.87	3.31	10.32	3.51
2003	72.89	4.17	38.70	3.85	36.12	3.74
2004	34.83	3.72	27.74	3.86	34.83	3.98
2005	25.80	3.79	14.19	3.48	11.61	3.55
2006	92.90	4.56	36.77	3.78	30.96	3.77

Because the monthly average flows typically remain below 4.5 MGD during the critical July through

September period, EPA and MassDEP have retained the seasonal flow limits in this draft permit. The flow limits in the draft permit are therefore 5.7 MGD as an annual average flow, and 4.5 MGD as a monthly average flow from July 1 to September 30. The monthly average and daily maximum flows shall be reported for all months.

#### River Flow and Dilution Calculation

The receiving water 7Q10, or the 7-day mean stream low flow with 10-year recurrence interval and the treatment plant design flow are used to calculate a dilution factor. A dilution factor is used to establish water quality based effluent limits in the draft permit.

EPA and MassDEP calculated the dilution factor in 2000 using the 7Q10 flow measured at the USGS gage in Dover<sup>1</sup> (01103500), average flows from the wastewater treatment plants discharging into the Charles and Stop Rivers upstream of the Dover gage during the week of August 7 through August 13, 1999, and the drainage areas upstream of the Dover gage and upstream of the CRPCD discharge. The treatment plant flows from this week were used because flows in the Charles River were approximately equal to the 7Q10 flows during this period so the plant discharge flows are representative of flows during a 7Q10 low flow period. EPA and MassDEP believe that this approach is still valid for use in this draft permit. The dilution factor was calculated using 4.5 MGD as the design flow. The dilution factor is 1.59. The calculations are as follows:

Dilution Factor Calculation:

#### ***7Q10 at USGS station 0110350 Charles River at Dover = 12.2 cfs***

*Contributing flows from WWTPs upstream of the USGS gage (August 7 - 13, 1999):*

Milford WWTP	3.64 cfs
CRPCD	5.38 cfs
Medfield WWTP	1.11 cfs
Wrentham Developmental Ctr	0.114 cfs
Caritas Southwood Community Hospital <sup>2</sup>	0.015 cfs
<u>MCI-Norfolk WPCF</u>	<u>0.569 cfs</u>
Total	10.83 cfs

Base flow at USGS Dover = (7Q10) - (contributing flows) = 12.2 cfs - 10.83 cfs = 1.37 cfs

Base flow per square mile of drainage area:

The total drainage area upstream of the Dover gage is 183 sq mi, therefore the flow factor for the watershed is:

$$(1.37 \text{ cfs}) / (183 \text{ sq mi}) = 0.0075 \text{ cfs/sq mi}$$

*Base Flow at CRPCD:*

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<sup>1</sup> Current 7Q10 at the Dover gage is estimated at 12.9 cfs, only a small change from the estimate in 1999.

<sup>2</sup> Caritas Southwood Community Hospital is included in this calculation of upstream WWTP flow, but the discharge has since been terminated. The calculation has not changed given the minimal flow from this facility.

Using the calculated flow factor for the watershed and the drainage area upstream of CRPCD discharge (66.7 sq mi), the base flow in the Charles River at the discharge point is:

$$(0.0075 \text{ cfs/sq mi}) (66.7 \text{ sq mi}) = 0.5 \text{ cfs}$$

*7Q10 Flow at CRPCD (Base flow at CRPCD plus Milford WWTP flow):*

Adding the base flow and the flow discharged from the Milford WWTP, the only discharge upstream of CRPCD:

$$7Q10 = (0.5 \text{ cfs}) + (3.64 \text{ cfs}) = 4.14 \text{ cfs}$$

*Dilution factor:*

$$\text{CRPCD flow} = 4.5 \text{ MGD} = 6.96 \text{ cfs}$$

$$\text{DF} = \frac{7Q10 + \text{design flow}}{\text{design flow}} = \frac{4.14 \text{ cfs} + 6.96 \text{ cfs}}{6.96 \text{ cfs}} = 1.59$$

### **Conventional Pollutants**

#### CBOD<sub>5</sub> and TSS

The seasonal concentration and mass-based effluent limitations for CBOD<sub>5</sub> and TSS are the same limits as the current permit and are based on previous waste load allocations<sup>3</sup>, water quality considerations, and state certification requirements. The summer average monthly and average weekly limits are 7 mg/l and 10 mg/l, respectively. The winter average monthly and average weekly limits are 15 mg/l and 25 mg/l, respectively. The monitoring frequency remains the same. These limits were established to achieve the Class B water quality standards in the Charles River.

#### *CBOD<sub>5</sub> and TSS Mass Loading Calculations:*

Average monthly limits = (concentration) (design flow) (8.34) = lbs/day

CBOD<sub>5</sub> and TSS (summer) = (7 mg/l) (4.5 MGD) (8.34) = 265 lbs/day

CBOD<sub>5</sub> and TSS (winter) = (15 mg/l) (4.5 MGD) (8.34) = 570 lbs/day

Average weekly limits = (concentration) (design flow) (8.34) = lbs/day

CBOD<sub>5</sub> and TSS (summer) = (10 mg/l) (4.5 MGD) (8.34) = 380 lbs/day

CBOD<sub>5</sub> and TSS (winter) = (25 mg/l) (4.5 MGD) (8.34) = 950 lbs/day

Between January 2005 and December 2007, the average monthly CBOD<sub>5</sub> ranged from 1.1 to 5.9 mg/l, and the maximum daily ranged from 1.5 to 28 mg/l (Table 1). There were no exceedances of the CBOD<sub>5</sub> average monthly concentration limit.

During the same period, the average monthly TSS concentration ranged from 0.8 to 76 mg/l, and the maximum daily ranged from 1.5 to 509 mg/l. There were four exceedances of the TSS average monthly limit during this period.

The monthly average 85 percent removal requirements for CBOD<sub>5</sub> and TSS are based on the provisions of 40 CFR §133.102(a)(3) and (b)(3). The limit is carried forward from the current permit. There were no exceedances for the CBOD<sub>5</sub> 85% removal requirement between January 2005 and December 2007. There was one exceedance for the TSS 85% removal requirement in June 2006.

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<sup>3</sup> Massachusetts Department of Environmental Protection, Charles River Basin 1976 Water Quality Management Plan, Report 72 – D-1.



***Fecal Coliform, Escherichia coli (E. coli), Dissolved Oxygen (DO) and pH***

The numerical limitations for fecal coliform, E.coli, dissolved oxygen (DO) and pH are based on state certification requirements under Section 401(a) of the CWA, as described in 40 CFR 124.53 and 124.55, and the Massachusetts Surface Water Quality Standards at 314 CMR 4.05(3)(b). The limits for pH, dissolved oxygen, and fecal coliform will remain unchanged from the limits in the existing permit.

Massachusetts adopted revisions to the State Water Quality Standards on March 26, 2007, which were approved by EPA on September 19, 2007. For Class B waters, the bacteria indicator changed from fecal coliform to E.coli for non-bathing beaches and other waters.

Accordingly, the draft permit contains effluent limits for E.coli. The proposed limits include a monthly geometric mean of 126 colony forming units (cfu)/100 ml and a daily maximum of 409 cfu/100 ml (the daily maximum value is the 90% distribution of the geometric mean of 129 cfu/100 ml).

Because the E.coli limits are new water quality based limits, the Massachusetts Water Quality Standards allow a compliance schedule for achieving them. (see 314 CMR 4.03(1)(b) and Section H in the draft permit). The draft permit includes a compliance schedule requiring that the E.coli limit be achieved by March 2010. The current permit limits for fecal coliform are continued as interim limitations until the E.coli limits become effective. The bacteria limits are seasonal, and the seasons remain the same as in the current permit (March-November).

The fecal coliform and E.coli samples are to be collected at the same time as the total residual chlorine samples.

During the period of January 2005 through December 2007 there were two exceedances of the maximum fecal coliform limits, no exceedances of the maximum pH limit, and one exceedance of the DO requirement.

**Non-Conventional Pollutants**

***Phosphorus***

The existing permit includes a seasonal monthly average effluent limit for total phosphorus of 0.2 mg/l (April 1 through October 31) and a reporting requirement for the remainder of the year (November 1 through March 31). From January 2005 through December 2007, the monthly average phosphorus concentration ranged from 0.07 to 2.9 mg/l in the summer with seven exceedances and 0.09 to 1.4 mg/l in the winter (Table 2).

As discussed earlier, the segment of the Charles River receiving the facility's discharge is not attaining water quality standards and is listed as impaired by unknown toxicity, metals, nutrients, organic enrichment/low dissolved oxygen, pathogens, noxious aquatic plants, and turbidity. The Charles River has been included on the 2006 Massachusetts Section 303(d) CWA lists for nutrients because of cultural eutrophication. Phosphorus is an essential nutrient for plant growth and is the limiting nutrient in fresh water ecosystems. Phosphorus discharged by the CRPCD and other sources into the Charles River has the potential to accelerate eutrophication.

MassDEP has not adopted numeric nutrient criteria for phosphorus, but its water quality standards include narrative criteria for nutrients at 314 CMR 4.05(5)(c) specifying that " unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment

of existing or designated uses” and “any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae, in any surface waters shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs...”. MassDEP construes “highest and best practical treatment” for POTWs as treatment achieving a monthly average total phosphorus concentration of 0.2 mg/l.

In the absence of a numeric criterion for phosphorus, EPA looks to nationally recommended criteria, supplemented by other relevant materials, such as EPA technical guidance and information published under Section 304(a) of the CWA, peer-reviewed scientific literature and site-specific surveys and data. *See* 40 CFR §122.44(d)(1)(vi)(B). EPA has produced several guidance documents which set forth total ambient phosphorus concentrations that are sufficiently stringent to control cultural eutrophication and other adverse nutrient-related impacts. These guidance documents present protective in-stream phosphorus concentrations based on two different analytical approaches. An effects-based approach provides a threshold value above which adverse effects (*i.e.*, water quality impairments) are likely to occur. It applies empirical observations of a causal variable (*i.e.*, phosphorus) and a response variable (*i.e.*, chlorophyll *a*) associated with designated use impairments. Alternatively, reference-based values are statistically derived from a comparison within a population of rivers in the same eco-region class. They are a quantitative set of river characteristics (physical, chemical and biological) that represent conditions in waters in that ecoregion that are minimally impacted by human activities (*i.e.*, reference conditions), and thus by definition representative of water without cultural eutrophication. Thus, while reference conditions, which reflect minimally disturbed conditions, will meet the requirements necessary to support designated uses, they may also exceed the water quality necessary to support such requirements.

The 1986 Quality Criteria of Water (commonly known as the “Gold Book”) follows an effects-based approach. It recommends maximum threshold concentrations designed to prevent or control adverse nutrient-related impacts from occurring. Specifically, the Gold Book recommends in-stream phosphorus concentrations of no greater than 0.05 mg/l in any stream entering a lake or reservoir, 0.1 mg/l for any stream not discharging directly to lakes or impoundments, and 0.025 mg/l within the lake or reservoir. A more recent technical guidance manual, the Nutrient Criteria Technical Guidance Manual: Rivers and Streams (EPA 2000) (“Nutrient Criteria Technical Guidance Manual”), cites a range of values drawn from the peer-reviewed scientific literature to control periphyton and plankton, two types of aquatic plant growth commonly associated with eutrophication. This guidance recommends an in-stream phosphorus concentration from 0.01 mg/l to 0.09 mg/l to control periphyton growth and concentrations from 0.035 mg/l to 0.070 mg/l to control plankton (see Table 4 on page 101).

EPA has also released recommended ecoregional nutrient criteria, established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published criteria represent conditions in waters in that ecoregion that are minimally impacted by human activities, and thus free from cultural eutrophication. The CRPCD discharge is within sub-ecoregion 59 of Ecoregion XIV, Eastern Coastal Plains. The total phosphorus criterion for this sub-ecoregion, found in Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV (2000), is 24 ug/l (0.024 mg/l). The recommended chlorophyll *a* criterion for aggregate Ecoregion XIV streams is 3.75 ug/l.

#### *Phosphorus concentrations in the Charles River Basin*

The impacts associated with the excessive loading of phosphorus are well documented in three recent

reports on the Charles River Watershed Basin. The Charles River Basin 2002-2006 Water Quality Assessment Report published by MassDEP in April 2008 and its Appendix B, Technical Memorandum TM 72-9; the Upper Charles River Watershed Total Maximum Daily Load Project, project # 2001-03/104, Volume I: Phase I Final Report, dated May 2004, and the Upper Charles River Watershed Total Maximum Daily Load, Project # 2001-03/104, Volume I: Phase II Final Report and Phase III Data Report, dated July 2006.

The Charles River Watershed Basin 2002-2006 Water Quality Assessment Report provides data from nine samples collected by the Charles River Watershed Association for total phosphorus both upstream and downstream of the treatment plant's outfall (segment MA72-05) for the months of April through September. The range of phosphorus concentration upstream of the outfall is between 0.0386 to 0.0836 mg/l and the range downstream of the outfall is between 0.043 to 0.0717 mg/l.

The MassDEP Technical Memorandum T72-9, Charles River Watershed DWM Year 2002 Water Quality Monitoring Data – Rivers includes data from sampling locations on the Charles River, upstream of CRPCD's discharge and downstream of the discharge. A range of total phosphorus concentration from April through September measured below the detection limit to 0.055 mg/l upstream of the discharge and below the detection limit to 0.061 mg/l downstream of the discharge.

The Upper Charles River Watershed Total Maximum Daily Load, Project # 2001-03/104, Volume I: Phase I Final Report, and Volume I: Phase II Final Report and Phase III Data Report states that every tributary, wastewater treatment plant and, all but two main stem sites on the Charles River, (one in Milford and one in Millis) exceed the USEPA recommended action limit for total phosphorus of 0.024 mg/l. Data from dry weather sampling events conducted in August 2002 show that instream concentration of phosphorus downstream from the treatment plant is higher than upstream of the treatment plant and also shows elevated concentrations of chlorophyll a, dissolved oxygen, and pH, which are indicative of excessive plant growth. See the Table below.

*Charles River TMDL Water Quality Monitoring Data (mg/l)*

Dry Sampling Date	Total Phosphorus	Orthophosphate	Chlorophyll a	DO	Percent Saturation
Station 184S: USGS Gage Station, upstream of Populatic Pond, Medway					
8/13/2002	0.0472	0.0141	4.92 <sup>1</sup>	9.54 - 9.63 <sup>2</sup>	----
8/24/2005	0.0259	0.016	ND	8.84	99.7
Station 201S <sup>3</sup> : Outlet of Populatic Pond, Medway					
8/13/2002	0.0632	0.0201	0.0416	9.2	110
8/24/2005	0.0562	0.0134	0.022	10.10	119
Station 202W: CRPCD Discharge					
8/13/2002	0.106	0.116	0.0416	----	----
8/24/2005	0.0992	0.0897	0.022	7.7	----

Station 207S: One-half mile downstream of CRPCD outfall, Norfolk					
8/13/2002	0.0717	0.0312	38 <sup>1</sup>	9.85	115
8/24/2005	0.0536	0.0233	12	8.8	106.5
Station 229S: Two miles downstream of CRPCD, Millis					
8/13/2002	0.0230	0.0219	0.00804 <sup>1</sup>	7.9	----
8/24/2005	0.0375	0.0188	0.007	7.1	82.5
Station 290S: Nine miles downstream of CRPCD, Medfield (above Medfield WWTP)					
8/13/2002	0.0395/0.0378 <sup>4</sup>	0.00928/0.00943 <sup>4</sup>	0.00946/0.00928 <sup>4</sup>	7.9	----
8/24/2005	0.0415	0.011	0.015	7.2	90
Station 294S: Immediately below Medfield WWTP					
8/13/2002	0.100	0.0622	12.4	8.2	----
8/24/2005	0.041	0.0122	15	7.5	90
Station 318S: Route 27 Bridge, Medfield/Sherborn town line					
8/13/2002	0.0616	0.0187	1.93 <sup>1</sup>	8.83	----
8/24/2005	0.0377	0.0115	9	5.7	68.3
Station 387S: Cheney Bridge, Wellesley, downstream of South Natick					
8/13/2002	0.0307	0.182	7.48 <sup>1</sup>	5.37	----
8/24/2005	0.0462/0.0504 <sup>4</sup>	0.0137/0.0141 <sup>4</sup>	9/9 <sup>4</sup>	5.3	64.2
Station 407S: Claybrook Road, Dover					
8/13/2002	0.0384/0.0346 <sup>4</sup>	0.00614/0.00384 <sup>4,5</sup>	30.8/27.4 <sup>1,4</sup>	8.26	----
8/24/2005	0.043	0.0118	13	5.9	75
Station 447S: USGS Gage, Dover					
8/13/2002	0.0372	0.00476	10.7	6.42	----
8/24/2005	0.0572	0.00996	21	6.8	----

<sup>1</sup>Chlorophyll *a* equipment blanks for 8/13/02 are 0.00215 and 0.00301 mg/l.

<sup>2</sup>Unstable.

<sup>3</sup>Station 201S is located at the outlet of Populatic Pond upstream of the discharge

<sup>4</sup>Field Duplicate.

<sup>5</sup>Field Duplicate Relative Percent Difference is greater than acceptable range.

In addition to the data in the tables above, continuous dissolved oxygen data collected in Populatic Pond,

just upstream of the discharge, and from the first sampling site downstream of the CRPCD discharge (207S) show large diurnal variations in dissolved oxygen and very high levels of supersaturation (see Figures 2-27 and 2-28, from *Upper Charles River Watershed Total Maximum Daily Load Project, Volume I: Phased I Final Report*. This data is indicative of significant photosynthesis-driven fluctuations in dissolved oxygen, an indication large quantities of plant biomass are in the receiving water.

The Charles River Watershed 2002-2006 Water Quality Assessment Report notes a bloom of cyanobacteria algae in this segment of the Charles River in September 2004 and also notes large mats of filamentous algae downstream of Populatic Pond in July 2002.

In summary, the available data shows extremely high productivity in the receiving water upstream and downstream of the discharge as evidenced by high chlorophyll a, large diurnal variation in dissolved oxygen concentration and visible algae mats as noted in field observations.

As discussed previously, the existing permit includes a monthly average total phosphorus limit of 0.2 mg/l, which was based on MADEP's interpretation of highest and best practical treatment for POTWs. However, the receiving water data collected for the TMDL shows that this limit is not sufficiently stringent to achieve water quality standards. Pursuant to 40 CFR 122.44(d)(1) (v), where a State has not established a water quality criterion for a specific chemical pollutant that is present in the effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits using one or more of the following options:

(A) – Establish effluent limits using a calculated numeric water quality criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use. Such a criterion may be derived using a proposed state criterion, or an explicit State policy or regulation interpreting its narrative criterion, supplemented with other relevant information which may include: EPA's Water Quality Standards Handbook, October 1983, risk assessment data, exposure data, information about the pollutant from the Food and Drug Administration, and current EPA criteria documents; or

(B) – Establish effluent limits on a case-by-case basis, using EPA's water quality criteria, published under section 304(a) of the CWA, supplemented where necessary by other relevant information; or

(C) – Establish effluent limitations on an indicator parameter for the pollutant of concern.

EPA has produced several guidance documents which contain recommended total phosphorus criteria for receiving waters to which this data may be compared. The 1986 Quality Criteria for Water (EPA 440/5/86-001), commonly known as the "Gold Book", recommends a desired goal of 0.1 mg/l total phosphorus for the prevention of plant nuisances in streams or other flowing waters not discharging directly into lakes or impoundments.

More recently, EPA has released "Ecoregional Nutrient Criteria," established as part of an effort to reduce problems associated with excess nutrients in water in specific areas of the country. The published criteria represent conditions in waters in an ecoregion minimally impacted by human activities, and thus representative of water without cultural eutrophication. CRPCD WPAF is within Ecoregion XIV, Eastern Coastal Plains, Level III Northeastern Coastal Zone. The total phosphorus criteria for this ecoregion, found in Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State

and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV (EPA-822-B-00-022, December 2000), is 24 ug/l (0.024 mg/l). The chlorophyll *a* criteria for the aggregate ecoregion is 3.75 ug/l (0.004 mg/l). The report emphasizes that these values represent a starting point for states to develop more refined nutrient criteria for local conditions.

The current limit is not sufficiently stringent to achieve the Gold book criteria under 7Q10 conditions, or the Ecoregion Criteria under average summer conditions. A more stringent limit, based on the Gold Book criteria is proposed in the draft permit and was calculated as follows:

*Calculation of Summer Phosphorus Effluent Limits based on 1986 Quality Criteria for Water (EPA 440/5/86-001):*

**Average monthly summer total phosphorus limit:**

The effluent limit was calculated to assure that the instream total phosphorus concentration does not exceed 0.1 mg/l under 7Q10 low flow conditions with the treatment plant discharging at a flow of 4.5 MGD (6.96 cfs). A background concentration of 0.06 mg/l was assumed based on the instream data collected at sampling site 201S, just upstream of the discharge. The calculation of the limit is shown below

$$Q_r C_r = Q_d C_d + Q_s C_s$$

Where

- $Q_r$  = receiving water flow downstream of the discharge ( $Q_d + Q_s$ ), 11.1 cfs
- $C_r$  = total phosphorus concentration in the receiving water downstream of the discharge, 0.1 mg/l
- $Q_d$  = discharge flow from the facility, 6.96 cfs
- $C_d$  = total phosphorus concentration in the discharge
- $Q_s$  = receiving water flow upstream of the discharge, 4.14 cfs
- $C_s$  = total phosphorus concentration upstream of the discharge, 0.06 mg/l

Solving for  $C_d$  yields:

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

$$C_d = \frac{(11.1)(0.1) - (4.14)(0.06)}{6.96}$$

$$C_d = 0.12 \text{ mg/l}$$

The draft permit therefore includes a monthly average summer phosphorus limit of 0.12 mg/l. In the future, should MassDEP adopt numeric phosphorus criteria, or a TMDL be approved by EPA, or should additional water quality information shows that a different (more or less stringent) phosphorus limit will result in attainment of water quality standards, the permit may be modified to include the appropriate limit.

The draft permit also includes a total phosphorus limitation of 1.0 mg/l for the period from November 1 through March 31. The basis for the limit is to protect the Charles River from cultural eutrophication. The discharge of particulate phosphorus from the facility during the winter months to the Charles River has the potential to settle and become incorporated into the bottom sediments within the Charles River system.

The potential for particulate phosphorus being stored in the Charles River system is high because of the physical characteristics of the downstream river system, which include low gradient segments, adjacent wetland/marshy areas, and impounded sections along the river (areas upstream of dams). These characteristics result in low flow velocities and long travel times which, allows particulate matter to settle from the water column and become part of the bottom sediments.

The primary concern with phosphorus being stored in the bottom sediments is that it may become available for algal and macrophyte growth during the summer growing season. Depending on water column conditions, sediment-bound phosphorus may be released to the water column. This is particularly true for impounded portions of the river that become stratified during the summer months and have low DO in the lower water column. Low DO at the sediment water interface promotes mobilization of phosphorus from the sediments to the water column. A limit of 1.0 mg/l from November 1 through March 31 will require removal of most of the particulate-bound phosphorus in the discharge. This will presumably allow the dissolved portion to pass out of the system during the winter and spring when flows are higher and plant uptake is low. Orthophosphorus will be monitored during the winter months to determine the bioavailable concentration of phosphorous in the water column.

In summary, the draft permit total phosphorus limit for the summer months is 0.12 mg/l and the winter limit is 1.0 mg/l. The monitoring frequency for the summer is 3/week, and the winter monitoring frequency is 1/month.

### ***Ammonia***

Ammonia can impact the receiving stream's dissolved oxygen concentration and can be toxic at elevated levels. The ammonia limits are based on previous waste load allocations and water quality considerations. These limits have been established to achieve dissolved oxygen water quality standards for a Class B receiving water. The effluent limitations in the draft are the same as the limits in the existing permit. The average monthly, average weekly, and maximum daily concentration limits for the month of April are 10 mg/l, 15 mg/l, and 20 mg/l and for May the limits are 5 mg/l, 7.5 mg/l and 10 mg/l. The average monthly, average weekly, and maximum daily concentration limits for the months of June through October are 1 mg/l, 1.5 mg/l, and 2 mg/l.

During the winter months, ammonia limits may not be necessary to ensure compliance with water quality standards given the higher receiving water flows, reduced rates of biological degradation of ammonia and, higher instream concentrations of dissolved oxygen. However, winter limits may be necessary to ensure that ammonia toxicity does not cause or contribute to violations of water quality standards. The facility reports average monthly and maximum daily ammonia limits from November 1 through March 31 once per month. See Table 2 for total ammonia data reported on the facility's discharge monitoring report from January 2005 through December 2007.

In order to determine if there is a reasonable potential for the CRPCD discharge to cause a violation of the water quality standards, the potential winter limits were calculated as follows:

### **Winter Ammonia Limits Calculations:**

The winter ammonia instream criteria is dependent on pH and temperature, as explained in 1999 Update of Ambient Water Quality Criteria for Ammonia (EPA-822-R-99-014), and Federal Register Vol. 64, No. 245, pgs. 71973 - 71980, December 22, 1999. The recommended chronic ammonia criteria is established as a 30-day concentration, therefore the monthly average limit has been calculated using a dilution factor based on 30-day mean low flow with a recurrent interval of 10 years (30Q10) and the discharge design

flow.

*Estimation of 30Q10 for period of November 1 to March 31:*

**Charles River 30Q10 at USGS station 0110350 Charles River at Dover = 72.1 cfs**

The contributing flows for the 30Q10 estimate are based on the design flows, in contrast to the 7Q10 estimate, where the flows were based on the actual discharge volumes during a period when 7Q10 conditions existed in the river.

Contributing flows from upstream WWTPs:

Milford WWTP	4.3 MGD	6.6 cfs
CRPCD	4.5 MGD	6.96 cfs
Medfield WWP	1.52 MGD	2.35 cfs
Wrentham Developmental Ctr	0.454 MGD	0.70 cfs
Caritas Southwood Hospital	0.055 MGD	0.085 cfs
<u>MCI-Norfolk</u>	<u>0.484 MGD</u>	<u>0.749 cfs</u>
Total contributing flows		17.4 cfs

\* Base flow at USGS Dover = (30Q10) - (contributing flows) = 72.1 cfs - 17.4 cfs = 54.7 cfs

*Base flow per square mile of drainage area (base flow factor):*

$$(54.7 \text{ cfs}) / (183 \text{ sq mi}) = 0.298 \text{ cfs/sq mi}$$

\* 30Q10 estimate at CRPCD:

$$(\text{base flow factor}) (\text{drainage area}) + (\text{Milford flow}) = (0.29) (66.7 \text{ sq mi}) + (6.6 \text{ cfs}) = 26.47 = 26.5 \text{ cfs}$$

*Instream dilution based on 30Q10:*

$$DF = \frac{30Q10 + \text{design flow}}{\text{design flow}} = \frac{26.5 + 6.96}{6.96} = 4.8$$

*Calculation of Ammonia Criteria:*

Temperature and pH data collected by the Charles River Watershed Association from 2000 through 2002 at station 165S, Shaw Street Bridge, Medway/Franklin ([www.crwa.org](http://www.crwa.org)), were reviewed to determine the pH and temperature values needed to calculate the ammonia criteria. On occasion, the pH in the winter months was below the minimum water quality standard of 6.5.

The CRWA data on the ammonia criteria for each sampling data are tabulated below. Based on this information, a criteria value of 4.36 mg/l based on a pH of 7.5 and temperature of 1<sup>0</sup> C was selected to be protective of the river during cold weather conditions.

*Calculation of Ammonia Criteria*

Month	pH	Temperature, °C	Instream Criteria, mg/l
March 2002	6.9	3.0	6.12
February 2002	7.4	2.0	4.73
November 2001	7.5	1.0	4.36
March 2001	6.7	0.5	6.44



November 2000	6.8	3.5	6.29
March 2000	7.3	0.0	5.08
February 2000	6.3	1.0	6.67
December 2000	6.9	---	6.12
November 2000	6.0	3.5	6.67

Average monthly winter ammonia limit = (ammonia criteria) (30Q10 DF) = (4.36 mg/l) (4.8) = 21 mg/l

The weekly average ammonia criteria should be no more than twice the monthly average limit:

Weekly average winter ammonia limit = (average monthly limit) (2) = (21 mg/l) (2) = 42 mg/l

The average monthly and maximum daily ammonia concentrations reported on the monthly discharge monitoring reports are listed in Table 2. Based on these calculations, reasonable potential of ammonia concentration in the effluent exceeding water quality criteria does not exist. Therefore winter ammonia limits are not required at this time. The reporting requirement and 1/month winter sampling frequency are carried over from the current permit.

#### ***Total Residual Chlorine (TRC)***

The effluent is seasonally disinfected with chlorine gas and dechlorinated with sodium bisulfate. The chlorine is delivered by a vacuum-solution feed chlorinator. The chlorine feed rate and pounds remaining in the cylinder are checked every morning. In the event of loss of injector water, the chlorinator will respond to the loss of vacuum and automatically discontinue flow of chlorine gas supplied by the cylinder. The daily maximum concentration reported for effluent monitoring over the past two years ranged from below the detection limit of 0.05 mg/l to 0.9 mg/l, with four exceedances. Table 1 shows the TRC values recorded on the monthly discharge monitoring report.

Chlorine and chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. The draft permit includes total residual chlorine limits based on Massachusetts Water Quality Standards [314 CMR 4.05(5)(e)] and the Massachusetts Implementation Policy for the Control of Toxic Pollutants in Surface Waters, February 23, 1990. The instream criteria for chlorine are found in the updated compilation of the National Recommended Water Quality Criteria: 2002 (EPA 822-R-02-047). The calculations for water quality based limits are as follows:

*National Recommended Water Quality Criteria 2002 (EPA 822-R-02-047):*

Chronic criteria (CCC) = 11 ug/l

\*Average monthly limit = (CCC) x (DF) = (11 ug/l) (1.59) = 17 ug/l

Acute criteria (CMC) = 19 ug/l

\*Maximum daily limit = (CMC) x (DF) = (19 ug/l) (1.59) = 30 ug/l

A monitoring frequency of 2/day for chlorine is the minimum frequency authorized in the permit. The minimum detection level (ML) for TRC has been lowered to 20 ug/l in the draft permit. This level may be obtained using the EPA methods specified in the permit. The average monthly TRC limit in the permit is below the analytical detection limit for this pollutant. In these situations, EPA Region I is following guidance set forth in Technical Support Document for Water Quality Based Toxics Control (EPA 505/2-90-001, March 1991, page 111), which recommends that "the compliance level be defined in the permit as the minimum level (ML)." Therefore, the limit at which compliance determinations will be based is the ML. For this permit, the ML for total residual chlorine is defined at 20 ug/l and any value

below 20 ug/l shall be reported as zero on the Discharge Monitoring Report. The ML value may be reduced by permit modification as EPA and the State approves more sensitive tests.

The E.coli bacteria samples shall be collected at the same time and location as the TRC sample.

***Whole Effluent Toxicity Testing***

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

*“All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. Where the State determines that a specific pollutant not otherwise listed in 314 CMR 4.00 could reasonably be expected to adversely affect existing or designated uses, the State shall use the recommended limit published by EPA pursuant to 33 U.S.C. 1251 §304(a) as the allowable receiving water concentrations for the affected waters unless a site-specific limit is established. Site specific limits, human health risk levels and permit limits will be established in accordance with 314 CMR 4.05(5)(e)(1)(2)(3)(4)”.*

National studies conducted by the EPA have demonstrated that domestic sources contribute toxic constituents to POTWs above those which may be contributed from industrial users. These pollutants include metals, chlorinated solvents, aromatic hydrocarbons and other constituents. As a result, EPA Region I and MassDEP have developed toxicity control policies. These policies require wastewater treatment facilities to perform toxicity bioassays on their effluent. Discharges that have a dilution of less than 10:1 require acute and chronic toxicity limits.

Based on the potential for toxicity resulting from domestic sewage, and in accordance with EPA regulations 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”, 50FR30784 (July 25, 1985); see also EPA Technical Support Document for Water Quality-Based Toxics Control,” (EPA/505/2-90-001, September 1991).

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

The chronic no observed effect concentration (C-NOEC) whole effluent toxicity limit is calculated using the instream waste concentration (IWC) of the WPAF effluent. The IWC is the inverse of the dilution (1.59 cfs).

$$C\text{-NOEC} = 1 / \text{dilution factor} = 1 / 1.59 = 0.63 = 63 \%$$

Toxicity test requirements in the draft permit are the same as in the existing permit. The permittee shall test two species, the daphnid, Ceriodaphnia dubia and the fathead minnows, Pimephales promelas. The toxicity tests shall be conducted in the months of January, April, July and October to be consistent with

other facilities in the Charles River watershed. The draft permit requires that if any future toxicity test should fail to comply with the permit limits, the permittee must retest the effluent within fourteen days of the original test.

See Permit **Attachment A**, Freshwater Chronic Toxicity Test Procedure and Protocol, for a description of the testing requirements.

### **Toxic Pollutants**

Relatively low concentrations of trace metals in receiving waters can be toxic to resident aquatic life species. EPA is required to limit any pollutant that is, or may be discharged at a level that caused, or has reasonable potential to cause, or contributes to an excursion above any water quality criterion. See 40 CFR 122.44(d)(1)(vi). Effluent metals data submitted with toxicity tests results and discharge monitoring reports were reviewed to determine if any of the metals in the discharge have the potential to exceed aquatic life criteria in the Charles River.

The EPA recommended approach to set and measure compliance with water quality standards is to use dissolved metals, because dissolved metals more closely approximates the bioavailable fraction of metal in the water column than does total recoverable metal. Most toxicity to aquatic organisms is by adsorption or uptake across the gills which would require the metal to be in dissolved form. When toxicity tests were originally conducted to develop EPA's Section 304(a) metals criteria, the concentrations were expressed as total metals. Subsequent testing determined the percent of the total metals that is dissolved in the water column. The calculations that follow use the freshwater conversion factors to calculate the dissolved acute and chronic water quality criteria for metals (EPA National Recommended Water Quality Criteria: 2002, Appendix A).

However, the regulations in 40 CFR 122.45(c) require that the permit limits be based on total recoverable metals. The chemical differences between the effluent and the receiving water may cause changes in the partitioning between dissolved and particulate forms of metals. As the effluent mixes with the receiving water, adsorbed metals from the discharge may dissolve in the water column.

In this case, measuring dissolved metals would underestimate the impact on the receiving water, and an additional calculation, using a site-specific translator would determine total metal criteria. Based on EPA's Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion (EPA-823-B-96-007), the conversion factor is equivalent to the translator if site-specific studies for partitioning have not been conducted. In subsequent calculations, conversion from dissolved metals to total recoverable metals have been done using the conversion factor for the particular metal found in Appendix A of National Recommended Water Quality Criteria: 2002, in lieu of a translator.

**Copper** - The current permit includes an average monthly total recoverable copper limitation of 10 ug/l and a maximum daily total recoverable copper limitation of 14 ug/l. These limits were calculated using the EPA 1998 National Recommended Water Quality Criteria for Copper, using a hardness of 60 mg/l as CaCO<sub>3</sub>, which resulted in a total recoverable chronic criteria of 6 ug/l and a total recoverable acute criteria of 8.6 ug/l. These criteria were then multiplied by the dilution factor of 1.59 to calculate the limits.

The Massachusetts Surface Water Quality Standards 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 and chronic criterion of 18.1 ug/l for the Charles River on March 26, 2007.

Antibacksliding requirements found at CWA 402(o) and 40 CFR 122.44(l) generally prohibit relaxation of effluent limits. Water quality-based effluent limits can only be relaxed if one of the exceptions found at CWA 402(o)(2) is met or if the requirements of CWA 303(d)(4) are met. In this case, the requirements in CWA 303(d)(4) apply.

CWA 303(d)(4) requires that a determination be made whether the receiving water is attaining the applicable water quality standard. If the receiving water is in attainment of the standard, a relaxation of the limit would be allowed subject to the state antidegradation policy. If the receiving water is not in attainment of the applicable standard, the existing limit must be based on a wasteload allocation or a total maximum daily load, and the relaxed limit is only allowed if attainment of water quality standards is ensured.

The segment of the Charles River receiving the discharge from CRPCD is listed on the Massachusetts Integrated List of Waters as not attaining water quality standards, and metals is listed as one of the pollutants causing nonattainment. However, to the extent that copper is one of the metals in nonattainment, this listing is based on the earlier copper criteria, which, as has been discussed, is about three times more stringent than the site-specific criteria.

The existing instream concentration of copper downstream of the discharge under critical low flow conditions was estimated using upstream copper concentrations obtained from the dilution water samples from CRPCD's WET tests, the effluent concentration of copper from DMR data, the facility design flow and receiving water 7Q10. The estimates were made using the equation below.

$$Q_r C_r = Q_d C_d + Q_s C_s$$

$Q_r$  = receiving water flow downstream of the discharge (7Q10 + plant flow)  
 $C_r$  = copper concentration in the receiving water downstream of the discharge  
 $Q_d$  = design flow of the discharge  
 $C_d$  = copper concentration in the discharge  
 $Q_s$  = receiving water flow upstream of the discharge  
 $C_s$  = copper concentration in the receiving water upstream of the discharge

The upstream total copper concentration, as measured in the dilution water for the whole effluent toxicity tests, averaged 4.5 ug/l, with a maximum concentration of 7.5 ug/l. The discharge monitoring reports show that the total copper concentration in the treatment plant discharge averaged 6.9 ug/l over the past two years, with a maximum monthly average of 12.9 ug/l and a maximum daily discharge of 22.4 ug/l.

Using the treatment plant design flow, the 7Q10 flow and the maximum concentrations ( $Q_r = 7.18$  MGD,  $Q_d = 4.5$  MGD,  $C_d = 12.9$  ug/l – chronic and 22.4 ug/l acute,  $Q_s = 2.68$  MGD, and  $C_s = 7.5$  ug/l) the resulting instream chronic concentration downstream of the discharge is estimated to be 11 ug/l and maximum (acute) concentration is 17 ug/l.

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

Where:

$$\begin{aligned}Q_s &= 2.68 \text{ MGD} \\C_s &= 7.5 \text{ ug/l} \\Q_d &= 4.5 \text{ MGD} \\C_d &= 12.9 \text{ ug/l chronic, } 22.4 \text{ ug/l acute} \\Q_r &= 7.18 \text{ MGD}\end{aligned}$$

$$C_r(\text{chronic}) = \frac{(4.5)(12.9) + (2.68)(7.5)}{7.18} = 10.8 \text{ ug/l}$$

$$C_r(\text{acute}) = \frac{(4.5)(22.4) + (2.68)(7.5)}{7.18} = 16.8 \text{ ug/l}$$

Comparing these calculated values (11 ug/l chronic, 17 ug/l acute) to the site-specific criteria (18 ug/l chronic, 25.7 ug/l acute), it can be seen that under critical conditions the instream concentration of copper would be less than the site-specific water quality criteria, meaning that the Charles River is a high quality water for copper, and a relaxation of the limits can be considered pursuant to the state's antidegradation policy.

Using the above equation, effluent limitations can be calculated which would result in an instream concentration equal to the new criteria. Using an upstream concentration of 7.5 ug/l ( $C_s$ ), the treatment plant design flow 4.5 MGD ( $Q_d$ ), the upstream 7Q10 flow of 2.68 MGD ( $Q_s$ ), the downstream flow of 7.18 ( $Q_r$ ), and downstream concentration equal to the criteria ( $C_r = 18.1 \text{ ug/l-chronic}$ , and  $25.7 \text{ ug/l - acute}$ ) the monthly average and daily maximum total copper effluent limitations would be 24.4 ug/l – chronic and 36.5 ug/l- acute.

$$C_d = \frac{Q_r C_r - Q_s C_s}{Q_r d}$$

Where:

$$\begin{aligned}Q_s &= 2.68 \text{ MGD} \\C_s &= 7.5 \text{ ug/l} \\Q_d &= 4.5 \text{ MGD} \\C_r &= 18.1 \text{ ug/l chronic, } 25.7 \text{ ug/l acute} \\Q_r &= 7.18 \text{ MGD} \\C_d(\text{chronic}) &= \frac{(7.18)(18.1) - (2.68)(7.5)}{4.5} = 24.4 \text{ ug/l}\end{aligned}$$

$$C_d(\text{acute}) = \frac{(7.18)(22.4) - (2.68)(7.5)}{4.5} = 31.2 \text{ ug/l}$$

However, because the Charles River would be considered a high quality water for copper based on the new site-specific criteria, Tier 3 of the antidegradation review procedure must be followed, which requires that high quality waters be maintained at existing quality.

The effluent data submitted by the permittee for the period from January 2004 through December 2006 shows that the maximum daily discharge concentration of total recoverable copper ranged from 3 ug/l to 22.4 ug/l and the monthly average discharge concentration ranged from 2 ug/l to 12.9 ug/l. Therefore,

based on this data we have included a monthly average limit of 13 ug/l and a maximum daily limit of 23 ug/l in the draft permit.

**Hardness Dependent Metals**

EPA’s Office of Water - Office of Science and Water Technology stated in a letter dated July 7, 2000 that: “The hardness of water containing the discharged toxic metal should be used for determining the applicable criterion. Thus the downstream hardness should be used. The hardness of the Charles River downstream of the treatment plant was calculated based on ambient and effluent hardness data collected for the whole effluent toxicity test from 2001 through 2005.

Calculation of hardness of the receiving water:

*Calculation of hardness in the receiving water:*

In order to determine the hardness downstream of the treatment plant during the critical low flow periods, the effluent and ambient hardness values from whole effluent toxicity tests conducted in July and October were calculated using mass balance equations:

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

Where:

- Q<sub>s</sub> = 7Q10 river flow upstream of plant = 4.14 cfs = 2.68 MGD
- Q<sub>d</sub> = Discharge flow from plant = 4.5 MGD
- Q<sub>r</sub> = Combined river flow (7Q10 + plant flow)
- C<sub>s</sub> = Upstream hardness concentration
- C<sub>d</sub> = Plant discharge hardness concentration
- C<sub>r</sub> = Receiving water hardness concentration

*Calculation of Downstream Hardness at CRPCD*

WET Test Date	Effluent Hardness, mg/l	Ambient Hardness, mg/l	Calculated Downstream Hardness, mg/l
10/05	180	36	126
07/05	190	44	135
10/04	170	72	133
07/04	150	62	117
10/03	136	72	112
07/03	124	60	100
10/02	208	100	168
07/02	104	72	92

WET Test Date	Effluent Hardness, mg/l	Ambient Hardness, mg/l	Calculated Downstream Hardness, mg/l
10/01	161	84	132
08/01	177	70	137

Example calculation:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_T} = \frac{(4.5 \text{ MGD})(104 \text{ mg/l}) + (2.68 \text{ MGD})(72 \text{ mg/l})}{(4.5 \text{ MGD} + 2.68 \text{ MGD})} = 92 \text{ mg/l}$$

The lowest downstream hardness of 92 mg/l from the above table was selected, as this would be the most protective of aquatic life.

Water Quality Criteria for hardness-dependent metals (see equations below):

Chronic criteria (dissolved) =  $\exp\{m_c [\ln (\text{hardness})] + b_c\}$  (CF)

Where :  
 $m_c$  = pollutant-specific coefficient  
 $c$  = pollutant-specific coefficient  
 $h$  = hardness of the receiving water = 92 mg/l as CaCO<sub>3</sub>  
 $\ln$  = natural logarithm  
 CF = pollutant specific conversion factor used to convert total recoverable to dissolved metal

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

Where:  
 $m_A$  = pollutant-specific coefficient  
 $b_A$  = pollutant-specific coefficient  
 $h$  = hardness of the receiving water = 92 mg/l as CaCO<sub>3</sub>  
 $\ln$  = natural logarithm  
 CF = pollutant specific conversion factor used to convert total recoverable to dissolved

*Metal Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness Dependent*

Chemical	$m_A$	$b_A$	$m_C$	$b_C$	Freshwater Conversion Factors (CF)	
					CMC	CCC
Lead	1.273	-1.460	1.273	-4.705	0.803	0.803
Nickel	0.8460	2.255	0.8460	0.0584	0.998	0.997
Cadmium	1.0166	-3.924	0.7409	-4.715	0.947	0.912
Zinc	0.8473	0.884	0.8473	0.884	0.978	0.986

Lead

CCC = Chronic lead criteria (dissolved) =  $\exp\{1.273 [\ln(92)] - 4.705\} (0.803) = 2.3 \text{ ug/l}$

Average Monthly Effluent limitation: (CCC) (dilution factor) = (2.3 ug/l) (1.59) = 3.7 ug/l (dissolved)

Total recoverable limit =  $3.7 \text{ ug/l} \div (0.803) = 4.6 \text{ ug/l} = 5 \text{ ug/l}$

CMC = Acute lead criteria (dissolved) =  $\exp\{1.273[\ln(92)] - 1.460\} (0.803) = 59 \text{ ug/l}$

Maximum Daily Effluent limitation: (CMC) (dilution factor) = (59 ug/l) (1.59) = 94 ug/l (dissolved)

Total recoverable limit =  $94 \text{ ug/l} \div (0.803) = 117 \text{ ug/l}$

Lead is monitored as part of the chemical analysis in quarterly toxicity testing. The concentration of lead in the effluent has been consistently below the minimum detection level (ML) of 0.0050 mg/l. Therefore, there is no reasonable potential for a violation of the water quality standards and no limit is required.

Nickel

CCC = Chronic nickel criteria (dissolved) =  $\exp\{0.8460 [\ln(92)] + 0.0584\} (0.997) = 48 \text{ ug/l}$

Average Monthly Effluent limitation: (CCC) (dilution factor) = (48 ug/l) (1.59) = 76 ug/l (dissolved)

Total recoverable limit =  $76 \text{ ug/l} \div (0.997) = 76 \text{ ug/l}$

CMC = Acute nickel criteria (dissolved) =  $\exp\{0.8460 [\ln(92)] + 2.255\} (0.998) = 436 \text{ ug/l}$

Maximum Daily Effluent limitation: (CMC) (dilution factor) = (436 ug/l) (1.59) = 693 ug/l (dissolved)

Total recoverable limit =  $693 \text{ ug/l} \div (0.998) = 694 \text{ ug/l}$

Nickel is monitored as part of the chemical analysis in quarterly toxicity testing. The concentration of nickel in the effluent has been below the minimum detection level (ML) of 0.004 to 0.007 mg/l. Therefore, there is no reasonable potential for a violation of the water quality standards and no limit is required.

Cadmium

CCC = Chronic cadmium criteria (dissolved) =  $\exp\{0.7409 [\ln(92)] - 4.72\} (0.912) = 0.23 \text{ ug/l}$

Average Monthly Effluent limitation: (CCC) (dilution factor) = (0.23 ug/l) (1.59) = 0.36 ug/l (dissolved)

Total recoverable limit =  $0.36 \text{ ug/l} \div (0.912) = 0.4 \text{ ug/l}$

CMC = Acute cadmium criteria (dissolved) =  $\exp\{1.0166 [\ln(92)] - 3.924\} (0.947) = 2 \text{ ug/l}$

Maximum Daily Effluent limitation: (CMC) (dilution factor) = (2 ug/l) (1.59) = 3.2 ug/l (dissolved)

Total recoverable limit =  $3.2 \text{ ug/l} \div (0.947) = 3.4 \text{ ug/l}$

Cadmium is monitored as part of the chemical analysis in quarterly toxicity testing. The concentration of cadmium has been below the minimum detection (ML) of 10 ug/l. Therefore, there is no reasonable potential for a violation of the water quality standards and no limit is required.

Zinc

CCC = Chronic zinc criteria (dissolved) =  $\exp\{0.8473 [\ln(92)] + 0.884\} (0.986) = 110 \text{ ug/l}$

Average Monthly Effluent limitation: (CCC) (dilution factor) = (110 ug/l) (1.59) = 175 ug/l (dissolved)

Total recoverable limit =  $175 \text{ ug/l} \div (0.986) = 177 \text{ ug/l}$

CMC = Acute zinc criteria (dissolved) =  $\exp\{0.8473 [\ln(92)] + 0.884\} (0.978) = 109 \text{ ug/l}$

Maximum Daily Effluent limitation: (CMC) (dilution factor) = (109 ug/l) (1.59) = 173 ug/l (dissolved)

Total recoverable limit =  $173 \text{ ug/l} \div (0.978) = 177 \text{ ug/l}$



Zinc is monitored as part of the chemical analysis in quarterly toxicity testing. The concentration of zinc in the effluent ranged from 0.017 to 0.031 mg/l. Therefore, there is no reasonable potential for a violation of the water quality standards and no limit is required.

#### Aluminum

The aluminum criterion is expressed in terms of total recoverable metal in the water column and is not hardness-dependent.

*CCC = Chronic aluminum criteria = 87 ug/l*

Average monthly effluent limitation: (CCC) (dilution factor) = (87 ug/l) (1.59) = 0.14 mg/l

*CMC = Acute aluminum criteria = 750 ug/l*

Maximum daily effluent limitation: (CMC)(dilution factor) = (750 ug/l) (1.59) = 1.2 mg/l

At the CRPCD WPAF, ferric chloride, rather than alum, is used for phosphorus control. The current permit includes a report only requirement, and the concentration of aluminum in the effluent has ranged from below detection to 0.03 mg/l (Table 2). Therefore, there is no reasonable potential for a violation of water quality standards and the effluent reporting requirement for aluminum has been eliminated. Aluminum will still be monitored as part of the chemical analysis in quarterly toxicity testing.

## **VI. UNAUTHORIZED DISCHARGES**

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

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

## **VII. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM**

The Towns of Franklin, Medway, Millis, and Bellingham own and operate their portions of the sewer collection system that transports sewage to the treatment plant. The draft permit includes these towns as co-permittees for the operation and maintenance of each town's separate sewer system. The CRPCD and the towns are each required to comply with Part I.B, Unauthorized Discharges and I.C, Operation and Maintenance of the Sewer System.

#### Infiltration/Inflow Requirements

The draft permit includes requirements for the permittee and co-permittees to control infiltration and inflow (I/I). Infiltration is groundwater that enters the collection system through physical defects such as cracked pipes or deteriorated joints. Inflow is extraneous flow entering the collection system through point sources such as roof leaders, yard and area drains, sump pumps, manhole covers, and cross connections from storm water systems. Significant I/I in a collection system may displace sanitary flow, reducing the capacity and the efficiency of the treatment works, and may cause bypasses to secondary treatment. It greatly increases the potential for sanitary sewer overflows (SSO) in separate systems.

The 2007 Infiltration/Inflow report submitted by CRPCD estimated daily infiltration/inflow to the facility at an average of 0.28 MGD. The report states that CRPCD, Bellingham, Franklin, Medway, and Millis did not have any unauthorized discharges from their sewer systems.

In March 2002, CRPCD conducted TV inspections of the District's Charles River Interceptor, Chicken Brook Connector, and a portion of the Shepard's Brook Connector. The District wanted to determine if significant infiltration was present in its collection systems at the three river crossings and the interceptor adjacent to the Charles River. Seven locations with infiltration were found and sealed in July 2002 resulting in an estimated reduction of 50,000 gpd of infiltration.

***From 2002 to 2005, CRPCD assisted Franklin with TV inspections of 14,464 feet of sewer lines, and 11,166 feet were surveyed in Millis.***

During 2005, Franklin lined 10,774 feet of sewer pipe; tested and sealed 18,623 feet; and rehabilitated 74 manholes. Also, 34 spot repairs were performed by a curing-in-place process. An estimated 500,000 gpd were eliminated from the sewer system. In 2007, the Town inspected approximately 500 sewer manholes, performed flow isolation in four sub areas, identified and eliminated four direct sources of inflow, evaluated flows through two sewer pump stations to assess the magnitude of wet weather/dry weather flow and installed a flow meter in the Beaver Street Interceptor to provide monitoring of wet weather/dry weather flow.

In 2007, Medway continued to inspect manholes and has compiled a list for remedial action. The Town found no unauthorized discharges in 2007. In prior years Medway has repaired sewer connections and manholes to eliminate an estimated 288,000 gpd of I/I.

In 2007 Bellingham hired a consultant to study and overhaul the Stanwood Circle meter before the end of fiscal year 2008. The Town is also planning to install remote monitoring equipment within the sewer system which is expected to further efforts to identify areas with I/I. Bellingham completed a two-year program to continuously monitor pump station operation and meter readings, inspect and repair manholes, drop structures, and pipe lines in the Stanwood Meter (Pilgrim Village), North Main Street Pump Station (Wethersfield), and Mechanic Street Pump Station sub-systems. As a result, 20,000 gpd were eliminated. Bellingham has added a line item to their sewer enterprise fund to continue their efforts to reduce I/I.

The Town of Millis appropriated a sum of \$120,000 in the fall of 2007 to start an I/I identification removal program. The program was expected to begin in the spring and last for three years. In prior years, the Town has replaced several cracked and broken sewer manhole covers and rims and required a sewer contractor to repair a leaking newly installed sewer line extension.

The permit requirements for infiltration/inflow have been updated, and the permittee is required to submit a plan for controlling inflow/infiltration to the sewer system with the cooperation of the communities who are co-permittees in the District within six months of the effective date of the permit, and an annual report by March 31 of each year. The permittee and co-permittees shall develop an I/I removal program commensurate with the severity of the I/I in the collection system. Where portions of the collection system have little I/I, the control program will logically be scaled down. Significant I/I in a collection system may displace sanitary flow, reduce the capacity and the efficiency of the treatment works, and may cause bypasses at the treatment plant.

The permit standard conditions for 'Proper Operation and Maintenance' are found at 40 CFR §122.41(e).

These require proper operation and maintenance of permitted wastewater systems and related facilities to achieve permit conditions. Similarly, the permittee and co-permittees have a 'duty to mitigate' as stated in 40 CFR §122.41 (d). This requires the permittee and co-permittees to take all reasonable steps to minimize or prevent any discharge in violation of the permit which has a reasonable likelihood of adversely affecting human health or the environment. EPA and MassDEP maintain that an I/I removal program is an integral component to insuring permit compliance under both of these provisions.

MassDEP has stated that inclusion of the I/I conditions in the draft permit shall be a standard State Certification requirement under Section 401 of the Clean Water Act and 40 CFR 124.55(b).

### VIII. PRETREATMENT

CRPCD receives process discharges from 4 significant industrial users. Garelick Farms discharges 300,000 gpd; ANP Bellingham Energy Company discharges 5500 gpd; and Castronics, Inc. and SMTC Manufacturing Corporation both contribute very small process and non-process flows.

The permittee is required to administer a pretreatment program based on the authority granted under 40 CFR122.44(j), 40 CFR Part 403, and Section 307 of the Clean Water Act. The permittee's pretreatment program received EPA approval on April 24, 1995, and as a result, the appropriate pretreatment program requirements were incorporated into the previous permit with that approval and the federal pretreatment regulations in effect when the permit was issued.

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

The permit requires the permittee to submit to EPA, within 90 days of the effective date of the permit, all required modifications of the Streamlining Rule in order to be consistent with the provisions of the newly promulgated Rule. To the extent the Permittee's legal authority is not consistent with the required changes, they must be revised and submitted to EPA for review.

These requirements are necessary to ensure continued compliance with the POTW's permit and its sludge use or disposal practices.

On January 4, 2006, EPA approved a report entitled "Charles River Pollution Control District Reevaluation of Local Limits (November 2005)." The revised local limits went into effect April 1, 2006. However, if other changes to the permittee's pretreatment program are deemed necessary to assure conformity with current federal pretreatment regulations, the draft permit requires the permittee to provide EPA in writing within 180 days of the permit's effective date, a description of proposed changes to the permittee's pretreatment program deemed necessary to assure conformity with current federal regulations. These requirements may be new to this draft permit and are commensurate with current EPA New England pretreatment policy. In addition, the permittee must continue to submit by **September 1**, an annual pretreatment report detailing the activities of the program for the period from July 1 to June 30.

Based on the potential for toxicity as a result of industrial discharges to the POTW, and as discussed previously the draft permit includes effluent toxicity limitations and requires the performance of effluent toxicity tests. These tests will assist in assessing the effectiveness of the permittee's pretreatment program and also may be used as a basis for development or revision of specific numerical pretreatment limits.

#### **IX. SLUDGE CONDITIONS**

Sludge is thickened with a belt thickener to 7% solids, and stored in two 75,000 gallon sludge holding tanks. In 2007 Synagro, Inc. pumped and transported on average 15 loads of sludge per week, equivalent to 3,761,000 total dry metric tons per year, to their incinerator in Woonsocket, RI. The grit and screenings are now trucked away by BFI, now that the on-site landfill has reached full capacity. A feasibility study for closing the landfill has been completed, but no date for implementation has been set.

Section 405(d) of the Clean Water Act requires that sludge conditions be included in all POTW permits. The sludge conditions in the draft permit satisfy this requirement and are taken from EPA's standards for disposal of sewage sludge.

#### **X. MONITORING & REPORTING**

The effluent monitoring requirements have been specified in accordance with 40 CFR 122.41(j), 122.44(i), and 122.48 to yield data representative of the discharge.

#### **XI. ANTI-BACKSLIDING**

A permit may not be renewed, reissued, or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirements of the CWA. The anti-backsliding provisions found in 40 CFR 122.44 (l) restrict the relaxation of permit limits, standards and conditions. Therefore, the technology-based effluent limits in a reissued permit must be at least as stringent as those in the previous permit. Relaxation is only allowed when cause for permit modification is met (see 40 CFR 122.62). Effluent limits based on water quality and state certification requirements must also meet the anti-backsliding provisions found under Section 402(o) and 303(d)(4) of the CWA, as described in 40 CFR 122.44(l).

The effluent limits for copper have been relaxed slightly. The relaxation of these limits are permissible under the anti-backsliding provisions found in 402(o) of the Clean Water Act and 40 CFR 122.44(l). Specifically, Section 402(o) specifies that water quality based effluent limits may be relaxed only in compliance with water quality standards and anti-degradation. For specific reasons discussed earlier in the fact sheet, EPA and MassDEP believe that these less stringent limitations are allowable.

The monitoring requirement for aluminum has been eliminated from the draft permit. Although this does not constitute anti-backsliding, it is based on new information from effluent monitoring results that do not show a reasonable potential for water quality violations. Aluminum is also one of the parameters that is analyzed as part of toxicity testing.

#### **XII. ANTI-DEGRADATION REVIEW**

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

#### **XIII. ESSENTIAL FISH HABITAT DETERMINATION**

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C § 1801 *et seq.*(1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat," 16 U.S.C. §1855(b).

The Amendments broadly define "essential fish habitat" (EFH) as "waters and substrate necessary to fish

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

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

There is no “habitat of particular concern,” as defined under §600.815 (a)(9) of the Magnuson-Stevens Act, designated for this site.

EPA and MassDEP have determined that a formal EFH consultation with NMFS for this discharge is not required. The proposed discharge permit is developed to meet State Surface Water Quality Standards and will not adversely impact EFH.

#### **XIV. STATE PERMIT CONDITIONS**

This NPDES permit is issued jointly by the U.S. Environmental Agency and the Massachusetts Department of Environmental Protection (MassDEP) under federal and state law, respectively. As such, all the terms and conditions of the permit are incorporated into and constitute a discharge permit issued by the MassDEP Commissioner, who designates signature authority to the Director of the Division of Watershed Management pursuant to M.G.L Chap. 21, §43.

#### **XV. STATE CERTIFICATION REQUIREMENTS**

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection (MassDEP), the state agency with jurisdiction over the receiving waters, certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of MassDEP has reviewed the permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the state and expects that the permit will be certified.

#### **XVI. COMMENT PERIOD, HEARING REQUESTS, and PROCEDURES FOR FINAL DECISIONS**

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Betsy Davis, U.S. EPA, Office of Ecosystem Protection, Municipal Permits Branch, 1 Congress Street, Suite 1100, Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the Draft Permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the Final Permit decision, any interested person may submit a petition for review of the permit to EPA’s

Environmental Appeals Board consistent with 40 C.F.R. § 124.19.

A similar request for a hearing should also be filed with the Director of the Massachusetts Division of Watershed Management in accordance with the provisions of the Massachusetts Administrative Procedures Act, the Division's Rules for the Conduct of Adjudicatory Proceedings, and the Timely Action Schedule and Fee Provisions. The Adjudicatory hearing request should be sent to:

Docket Clerk  
Office of Administrative Appeals  
Department of Environmental Protection  
One Winter Street, Second Floor  
Boston, MA 02108

The hearing request and a valid check for \$100 payable to the Commonwealth of Massachusetts must be mailed by the end of the comment period to:

Commonwealth of Massachusetts  
Department of Environmental Protection  
P.O. Box 4062  
Boston, MA 02211

The hearing request to the Commonwealth will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver.

The filing fee is not required if the appellant is a city, town (or municipal agency), county, district of the Commonwealth, or a municipal housing authority. The Department may waive the hearing filing fee for a permittee who shows that paying the fee will create undue financial hardship. A permittee seeking a waiver must file, along with the hearing request, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

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

#### **XVI. EPA AND MassDEP CONTACTS**

Additional information concerning the permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays, from:

Betsy Davis  
US Environmental Protection Agency  
1 Congress Street  
Suite 1100 (CMA)  
Boston, Massachusetts 02114-2023  
Telephone: (617) 918-1576  
Fax: (617) 918-0565  
Email: [davis.betsy@epamail.epa.gov](mailto:davis.betsy@epamail.epa.gov)

or

Kathleen Keohane  
MA Department of Environmental Protection  
Division of Watershed Management  
627 Main Street  
Worcester, MA 01608  
Telephone: (508) 767-2856  
Fax: (508) 791-4131  
Email: [kathleen.keohane@state.ma.us](mailto:kathleen.keohane@state.ma.us)

\_\_\_\_\_                      Stephen S. Perkins, Director\*  
Date                              Office of Ecosystem Protection  
   U.S. Environmental Protection Agency

Comments should be addressed to both Betsy Davis and Kathleen Keohane, not Stephen S. Perkins.

Attachment 3  
Charles River Pollution Control District  
Proposed Facility Upgrades

- Modification of the Parshall Flume (by removing the nested 18-inch flume) and allowing the use of the existing 36-inch flume to enable accurate flow measurement of the entire range of influent flows seen at the facility. This work will require by-pass pumping of the entire influent flow to the facility, so must be accomplished during low flow periods.
- Replacement of aging raw wastewater pump No. 1 and installation of new Pump No. 4 to improve efficiency and convey future peak flows. Maintenance of plant operation (pumping capacity) when working on the influent pumping system is critical and again should be timed to occur during low flow periods.
- Upgrades to the grit removal and handling system – this work has yet to be defined, and may be deferred, but again critical to not compromise the ability of the system to treat the influent flow.
- Enhancement of the secondary treatment system and nutrient removal via reconfiguration of the east battery tanks, replacement of the mechanical mixers with mixer aerators and modifications to the west battery tanks. This work will likely be sequenced such that the work on the east battery will be accomplished first, constructed, started-up, tested and then successfully operated for 30 or 60 days prior to shutting down the west battery and implementing improvements to those tanks. Lead time on the proposed mixers may drive this schedule. RAS and WAS pumps will be also be replaced. The work in the secondary system will likely be on the critical path for the completion of the project, and since the work on the east and west battery must be accomplished in series to maintain plant operation it is difficult to reduce the schedule too much. Note, maintaining permit compliance when only half of the aeration tank is operational will be challenging for the plant operators so relief on the phosphorus limit may be requested during construction.
- Modifications to secondary clarifiers. This work would need to be phased so the District always has 3 secondary clarifiers operational.
- Retrofit of the existing gravity sand filters with new Aqua Diamond cloth filter with 5 micron cloth. Since the existing sand filters are still used during high flow events this work should be undertaken during low flow periods, if possible. This first requires the demolition of the existing sand filters (removal of filtration media and all equipment) followed by the installation of the new equipment. A significant amount of work to ancillary facilities is required in this aging area to bring all systems up to current code and practice.
- Conversion of the disinfection system from chlorine gas to sodium hypochlorite. The intent would be to complete this construction in the off-season for disinfection (November –April) so this could drive the schedule.
- Install a new gravity belt thickener to supplement the existing GBT. Long lead time for this equipment, but installation will likely not impact current operation too dramatically.



- Other improvements include replacement of thickened sludge transfer pumps, a new polymer storage and feed system, new chemical storage and feed systems, new lime system, replacement or rehabilitation of many gates throughout the facility, installation of a new SCADA system, both interior and exterior architectural repairs, repair of structural deficiencies, replacement of the majority of the electrical equipment and motor control centers that are original to the 1970s facility (this requires significant sequencing to ensure the plant is always powered) and replacement of aging HVAC.

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

U.S. ENVIRONMENTAL PROTECTION  
AGENCY – REGION I  
5 POST OFFICE SQUARE  
BOSTON, MASSACHUSETTS 02109

JOINT PUBLIC NOTICE OF COMMENT PERIOD PERTAINING TO A PARTIALLY REVISED DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO THE WATERS OF THE UNITED STATES UNDER SECTION 301 AND 402 OF THE CLEAN WATER ACT (THE “ACT”), AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE ACT.

DATE OF NOTICE: August 29, 2012

PERMIT NUMBER: **MA0102598**

PUBLIC NOTICE NUMBER: MA-021-12

NAME AND MAILING ADDRESS OF APPLICANT:

Ms. Cheryl Cousens, Executive Director  
Charles River Pollution Control District  
66 Village Street  
Medway, Massachusetts 02053

NAME AND LOCATION OF FACILITY WHERE DISCHARGE OCCURS:

Charles River Pollution Control District  
66 Village Street  
Medway, Massachusetts 02053

RECEIVING WATER: Charles River

RECEIVING WATER CLASSIFICATION: B

**PREPARATION OF THE PARTIALLY REVISED DRAFT PERMIT:**

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have cooperated in the development of a partially revised National Pollutant Discharge Elimination System (NPDES) Draft Permit authorizing discharges from the Charles River Pollution Control District to the Charles River. 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. A Draft Permit was released for public notice comment on July 3, 2008, and comments were accepted until August 1,

2008 however, a final NPDES Permit has not been issued for this facility. EPA and MassDEP have decided to partially reopen the Draft Permit for public comment on the following requirements; the total phosphorus limits, the addition of co-permittees for sewer system operation and maintenance and unauthorized discharges, recently updated requirements of standard permit conditions and recently revised requirements for submitting monitoring and reporting data. The agencies have concluded that an opportunity for interested parties to comment on conditions that caused the Draft Permit to be reopened will assist the agencies in their deliberations and improve the quality of the Final Permit decision. Therefore, pursuant to 40 CFR § 124.14(b), public comment on the partially revised Draft Permit has been reopened. In accordance with 40 CFR § 124.14(c), comments filed during the reopened comment period shall be limited to the “substantial new questions that caused its reopening” only.

### **INFORMATION ABOUT THE PARTIALLY REVISED DRAFT PERMIT:**

A revised fact sheet (describing the basis for the revised Draft Permit conditions and significant factual, legal, and policy questions considering in preparing the Draft Permit) may be obtained at no cost at [http://www.epa.gov/region1/npdes/draft\\_permits\\_listing\\_nh.html](http://www.epa.gov/region1/npdes/draft_permits_listing_nh.html) or by writing or calling EPA’s contact person named below:

Betsy Davis  
U.S. Environmental Protection Agency  
5 Post Office Square, Mail Code: OEP06-1  
Boston, MA 02109

Phone: (617) 918-1576  
E-Mail: is [Davis.Betsy@epa.gov](mailto:Davis.Betsy@epa.gov)

The administrative record containing all documents relating to this partially revised Draft Permit is on file and may be inspected at the EPA Boston office mentioned above between 9:00 am and 5:00 pm, Monday through Friday, except Holidays.

### **PUBLIC COMMENT PERIOD:**

All persons, including applicants, who believe any condition of the partially revised Draft Permit is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by **September 27, 2012**, to U.S. EPA, Office of Ecosystem Protection, 5 Post Office Square, Mail Code – OEP06-1, Boston, Massachusetts, 02109. In reaching a final decision on the partially revised Draft Permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA’s Boston office.

### **FINAL PERMIT DECISIONS AND APPEALS:**

Following the close of the comment period and after the public hearing, 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 for the requested notice.

Pursuant to 40 CFR 124.17, at the time the final permit decision is issued, EPA will also issue a response to comments, which will include responses to all significant comments submitted on the 2008 Draft permit and on the 2012 partially revised Draft Permit

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

STEPHEN S. PERKINS, DIRECTOR  
OFFICE OF ECOSYSTEM PROTECTION  
U.S. ENVIRONMENTAL PROTECTION  
AGENCY – REGION I